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ABSTRACT

A House of Representatives subcommittee convened to consider legislation (H.R. 3677) to reauthorize the Asbestos School Hazard Abatement Act of 1984 (ASHAA) that provides financial assistance to needy school districts in the form of loans and grants for asbestos-related activities. The hearing record contains the text of H.R. 3677, testimony, and prepared statements. Almost one-third of the document consists of material submitted for the record by the General Services Administration: "Documentation Package for Asbestos Operations and Maintenance Programs in U.S. General Services Administration Facilities." The testimony of the following persons is also included: (1) August, James D., American Federation of State, County and Municipal Employees; (2) Billirakis, Michael, National Education Association; (3) Fisher, Linda J., Environmental Protection Agency; (4) Gee, J. Bernard L., professor of medicine, Yale University School of Medicine; (5) Herber, Katharine L., National School Boards Association; (6) Levin, Stephen M., medical director, Mount Sinai-Irving J. Selikoff Occupational Health Clinical Center; (7) Packer, Joel, National Education Association; (8) Veith, C. Gregory, manager, Council for American Private Education; and (9) West, Sarah, National Parent-Teacher Association. Also included is a statement by the Service Employees International Union, AFL-CIO, CLC. (MLF)

ED329000

ASBESTOS SCHOOL HAZARD ABATEMENT

HEARING

BEFORE THE

SUBCOMMITTEE ON
TRANSPORTATION AND HAZARDOUS MATERIALS

OF THE

COMMITTEE ON
ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

H.R. 3677

A BILL TO REAUTHORIZE THE ASBESTOS SCHOOL HAZARD ABATEMENT
ACT OF 1984

JUNE 19, 1990

Serial No. 101–190

Printed for the use of the Committee on Energy and Commerce

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EA 022 713

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ASBESTOS SCHOOL HAZARD ABATEMENT

TUESDAY, JUNE 19, 1990

House of Representatives,
Committee on Energy and Commerce,
Subcommittee on Transportation
and Hazardous Materials,
Washington, DC.

The subcommittee met, pursuant to notice, at 1:13 p.m., in room 2322, Rayburn House Office Building, Hon. Thomas A. Luken (chairman) presiding.

Mr. Luken. Let's move ahead. I apologize for starting a little late today, but there were other things on the calendar for the committee this morning.

Today the subcommittee convenes to consider legislation to reauthorize the Asbestos School Hazard Abatement Act of 1989, or ASHAA. The subcommittee will consider testimony from two scientific experts on the relative risks of exposure to asbestos. The main purpose of ASHAA, however, is to provide financial assistance to needy school districts in the form of loans and grants for asbestos-related activities. These include inspecting for asbestos-containing materials, preparing management plans, abating asbestos, and replacing asbestos with other material.

Another asbestos law, the Asbestos Hazard Emergency Response Act, or AHERA, requires the schools to inspect for asbestos and to develop and implement asbestos management plans. Asbestos abatement can range from inspection and maintenance to complete removal, depending upon factors such as condition and location of the asbestos. Appropriate action should be determined on a case-by-case basis.

The current ASHAA authorization expires this September. If it is not reauthorized, no Federal assistance will be available to many public and private schools for abatement, nor will any funds be available to continue the information assistance program currently provided by EPA.

According to EPA, as of October 1989, 94 percent of all school districts had completed the asbestos management plans required by AHERA. This means that 94 percent of the schools should have actually begun abatement work, many of which would be entitled to receive loans or grants under ASHAA. The latest data from EPA indicates that the amount of money requested through ASHAA has increased, but the majority of schools are unable to get the financial assistance they need to manage asbestos. In the 1990 application cycle, local educational authorities requested almost $406 million for abatement activities but only $44 million, or 11 percent, was made available.

H.R. 3677 extends the authorization for the loan and grant program through 1995 and increases the maximum amount that could be appropriated to $250 million per year. As we will hear today in testimony before the subcommittee, there is a dire need for continuing to provide Federal assistance to our schools for abating asbestos. Scarce money that otherwise would be spent on education will be diverted to pay for asbestos abatement. Already, private schools have closed because they could not pay for federally mandated abatement projects, and I suspect there are public schools who have either closed or are in danger of closing. Those that have not been forced to close have had to cut costs in other critical areas of education.

Aside from the funding issue, we will hear testimony from two medical experts. While Dr. Gee and Dr. Levin are generally viewed as representing opposite sides of the debate in asbestos, it seems to me that they share much in common, and what they share in common is applicable to this legislation. Both agree, as we all must agree, that high levels of asbestos exposure are worse than low level exposure or none. Both are concerned about exposure to workers removing asbestos. Both seem to agree that removal of asbestos is not always the best answer and that undisturbed or undamaged asbestos may be best left alone.

The bill before us today, H.R. 3677, was introduced by our former colleague, Mr. Florio, and more than 60 other original cosponsors. The bill includes important improvements to the ASHAA program and doubles the amount authorized to clean up asbestos in our schools. Since it was introduced, it has gathered additional cosponsors and it now has more than 80.

That concludes my preliminary statement. I am pleased to call upon the gentleman from Kansas, the ranking minority member of the subcommittee, Mr. Whittaker, for any preliminary statement that he may have.

[Testimony resumes on p. 21.]

[The text of H.R. 3677 follows:]

I

101st CONGRESS
1st Session

H. R. 3677

To reauthorize the Asbestos School Hazard Abatement Act of 1984.

IN THE HOUSE OF REPRESENTATIVES

November 16, 1989

Mr. Florio (for himself, Mr. Thomas A. Luken, Mr. Eckart, Mr. Rinaldo, Mr. Scheuer, Mr. Markey, Mrs. Collins, Mr. Sikorski, Mr. Richardson, Mr. Bruce, Mr. Bates, Mr. Traxler, Mr. Ackerman, Mr. AuCoin, Mr. Bateman, Mr. Boehlert, Mr. Bosco, Mrs. Boxer, Mr. Brown of California, Mr. Coleman of Texas, Mr. DeFazio, Mr. Dellums, Mr. Durbin, Mr. Dwyer of New Jersey, Mr. Dymally, Mr. Evans, Mr. Fascell, Mr. Fauntroy, Mr. Fazio, Mr. Foglietta, Mr. Frank, Mr. Frost, Mr. Gejdenson, Mr. Gonzalez, Mr. Gordon, Mr. Hayes of Louisiana, Mr. Hertel, Mr. Hoagland, Mr. Kastenmeier, Mr. Kildee, Mr. LaFalce, Ms. Long, Mr. McEwen, Mr. McNulty, Mr. Martin of New York, Mr. Miller of Washington, Mrs. Morella, Mr. Morrison of Connecticut, Mr. Mrazek, Mr. Nelson of Florida, Mr. Oberstar, Mr. Owens of New York, Ms. Pelosi, Mr. Rahall, Mr. Ridge, Mr. Roe, Mr. Sarpalius, Mr. Savage, Ms. Slaughter of New York, Mr. Smith of Florida, Mr. Staggers, Mr. Stokes, Mr. Torres, Mrs. Unsoeld, Mr. Vento, Mr. Wise, and Mr. Wolpe) introduced the following bill; which was referred to the Committee on Energy and Commerce

---

A BILL

To reauthorize the Asbestos School Hazard Abatement Act of 1984.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Asbestos School Hazard Abatement Reauthorization Act of 1989".

SEC. 2. FINDINGS AND PURPOSES.

(a) Findings.—Congress finds the following:

(1) Exposure to asbestos fibers has been found to cause various cancers and other severe or fatal diseases, such as asbestosis.

(2) Children are particularly susceptible to the adverse health effects of inhaling asbestos fibers.

(3) Asbestos which is friable can result in the release of asbestos fibers into the air, presenting a health hazard.

(4) The Environmental Protection Agency has estimated that more than 44,000 school buildings contain friable asbestos, exposing more than 15,000,000 school children and 1,500,000 school employees to unwarranted health hazards.

(5) All elementary and secondary schools are required by the Asbestos Hazard Emergency Response Act to inspect for asbestos, develop an asbestos management plan, and implement such plan.

(6) The Environmental Protection Agency has estimated it will cost local education agencies more than $3,000,000,000 to comply with the Asbestos Hazard Emergency Response Act.

(7) Without a continuing program of information assistance, technical and scientific assistance, training, and financial support, many local educational agencies will be unable to carry out sufficient response actions to prevent the release of asbestos fibers into the air.

(8) Without the provisions of sufficient financial support, the cost to local educational agencies of implementing asbestos response actions may have an adverse impact in their educational mission.

(9) The effective regulation of interstate commerce for the protection of human health and the environment requires the continuation of programs to mitigate hazards of asbestos fibers and materials emitting such fibers.

(b) PURPOSES.—The purposes of this Act are the following:

(1) To direct the Environmental Protection Agency to maintain a program to assist local schools in carrying out their responsibilities under the Asbestos Hazard Emergency Response Act.

(2) To provide continuing scientific and technical assistance to State and local agencies to enable them to identify and abate asbestos health hazards.

(3) To provide financial assistance to State and local agencies for training of persons involved with in-

spections and abatement of asbestos, for conducting necessary reinspections of school buildings, and for the actual abatement of asbestos threats to the health and safety of school children or employees.

(4) To assure that no employee of a local educational agency suffers any disciplinary action as a result of calling attention to potential asbestos hazards which may exist in schools.

SEC. 3. AMENDMENTS TO ASBESTOS SCHOOL HAZARD ABATEMENT ACT OF 1984.

Except as otherwise specifically provided, whenever in this Act a section or other provision is amended or repealed, such amendment or repeal shall be considered to be made to that section or other provision of the Asbestos School Hazard Abatement Act of 1984 (20 U.S.C. 4011 et seq.).

SEC. 4. ASBESTOS HAZARDS ABATEMENT PROGRAM.

Subsection (b) of section 503 is amended—

(1) in paragraph (2), by inserting "educational" after "local";

(2) in paragraph (2), by inserting ", including parent and employee organizations," after "institutions"; and

(3) by amending paragraph (3) to read as follows:

"(3) not later than 45 days after the appropriation of funds each year to carry out the asbestos hazards abatement program under this title, the development and distribution to all local educational agencies of an application form; and".

SEC. 5. STATE RECORDS AND PRIORITY LISTS.

(a) Maintenance of Records.—Subsection (a) of section 504 is amended—

(1) by striking out "Not later than" and all that follows through "maintaining records on—" and inserting in lieu thereof "The Governor of each State shall maintain records on—";

(2) in paragraph (2), by inserting "and other response actions" after "abatement activities";

(3) by inserting "and" after the semicolon at the end of paragraph (2); and

(4) in paragraph (3), by striking out "subparagraph (B)" and inserting in lieu thereof "paragraph (2)".

(b) Deletion of Department of Education References.—Subsection (b)(1) of section 504 is amended—

(1) by striking out "Not later than six months after the date of the enactment of this title and annually thereafter," and inserting in lieu thereof "Each year, in accordance with procedures established by the Administrator,";

(2) in subparagraphs (A) and (B), by striking out "and the Secretary of the Department of Education" both places it appears;

(3) in subparagraph (A), by inserting "and" after the semicolon at the end of such subparagraph; and

(4) by striking out subparagraph (C).

(c) DETERMINATION OF ADEQUACY OF RESOURCES.—Subsection (b)(4) of section 504 is amended—

(1) by redesignating subparagraph (F) as subparagraph (G); and

(2) by inserting after subparagraph (E) the following new subparagraph:

"(F) Any additional costs to the local educational agency of meeting the special needs of disadvantaged students.".

(d) CONFORMING AMENDMENT.—Section 504 is further amended by striking out subsection (c).

SEC. 6. FINANCIAL ASSISTANCE.

(a) APPLICATION APPROVAL DEADLINE.— Subsection (b) of section 505 is amended—

(1) in paragraph (2), by striking out "applications shall be submitted," and inserting in lieu thereof "the Governor shall submit applications,";

(2) in paragraph (2), by adding at the end the following: "The Administrator shall approve or disap-

prove applications for financial assistance no later than April 30 of each year."; and

(3) by striking out paragraph (3).

(b) RANKING APPLICATIONS.—Subsection (c)(2)(B)(iv) of section 505 is amended by striking out "is cost-effective compared to other techniques including management of material containing asbestos" and inserting in lieu thereof "uses the least burdensome methods which protect human health and the environment".

(c) DELETION OF REFERENCE TO DEPARTMENT OF EDUCATION REPORT.—Subsection (c)(3) of such section is amended by striking out "shall consider—" and all that follows through the end of the paragraph and inserting in lieu thereof the following: "shall consider the financial resources available to the applicant as certified by the Governor pursuant to section 504(b)(4).".

(d) ADDITIONAL LIMITATION.—Subsection (d) of such section is amended to read as follows:

"(d) LIMITATION.—In no event shall financial assistance be provided under this title to an applicant if—

"(1) the Administrator determines that such applicant has resources adequate to support an appropriate asbestos materials abatement program; or

"(2) the applicant is not in compliance with title II of the Toxic Substances Control Act (15 U.S.C. 2641 et seq.).".

(e) REQUIREMENT TO DEPOSIT FUNDS INTO ASBESTOS TRUST FUND.—Subsection (f) of such section is amended in paragraph (3) by striking out "for deposit in the general fund" and inserting in lieu thereof the following: "for deposit in the Asbestos Trust Fund established by section 5 of the Asbestos Hazard Emergency Response Act (Public Law 99-519; 20 U.S.C. 4022)".

(f) ADDITIONAL REQUIREMENTS FOR APPLICATION APPROVAL.—Subsection (g) of such section is amended—

(1) in paragraph (1), by striking out "within the five-year period beginning on the effective date of this title" and inserting in lieu thereof "in accordance with such procedures as may be developed by the Administrator";

(2) in paragraph (2)(B), by amending clauses (i) and (ii) to read as follows:

"(i) the local educational agency has prepared and is implementing an asbestos management plan, as required under title II of the Toxic Substances Control Act (15 U.S.C. 2641 et seq.); and "(ii) all activities to be conducted with the financial assistance will be performed by individuals trained and accredited in conformance with title II of the Toxic Substances Control Act (15 U.S.C. 2641 et seq.) and regulations promulgated under that title;"; and

(3) by striking out paragraph (4).

SEC. 7. ADMINISTRATIVE PROVISIONS.

Section 506 is amended—

(1) by redesignating subsection (c) as subsection (d); and

(2) by striking out subsection (b) and inserting in lieu thereof the following:

"(b) PROCEDURES.—The Administrator also shall establish procedures to be used by local educational agencies, in programs for which financial assistance is made available under section 505, for—

"(1) abating asbestos materials in school buildings;

"(2) replacing the asbestos materials removed from school buildings with other appropriate building materials; and

"(3) restoring such school buildings to conditions comparable to those existing before asbestos containment or removal activities were undertaken.

"(c) RELATIONSHIP TO OTHER LAWS.—Nothing contained in this title shall be construed, interpreted, or applied to diminish in any way the level of protection required under any other State or Federal worker protection or other applicable laws.".

SEC. 8. ANNUAL REPORT.

(a) REPORT DEADLINE.—The first sentence of section 507 is amended to read as follows: "During each calendar year until 1999, the Administrator shall prepare and submit, not later than June 1 of each year, to the Committee on Environment and Public Works of the Senate and to the Committee on Energy and Commerce of the House of Representatives a report on the loan and grant program authorized by section 505 of this title.".

(b) CONTENTS OF REPORT.—Paragraph (6) of such section is amended by inserting before the period the following: "and the amount of resources needed by such schools, categorized by State, to abate all remaining asbestos hazards".

SEC. 9. RECOVERY OF COSTS.

Paragraph (2) of section 508(a) is amended by inserting after "repay to the United States," the following: "by deposit in the Asbestos Trust Fund established by section 5 of the Asbestos Hazard Emergency Response Act (20 U.S.C. 4022),".

SEC. 10. DEFINITIONS.

Section 511 is amended—

(1) in paragraph (3), by inserting ", vibration," after "damage from water"; and

(2) by adding at the end the following new paragraph:

"(9) The term 'response action' has the meaning given such term by section 202(11) of the Toxic Substances Control Act (15 U.S.C. 2642(11).".

SEC. 11. AUTHORIZATION.

(a) AUTHORIZATION.—Paragraph (1) of section 512(a) is amended to read as follows: "(1) There are hereby authorized to be appropriated for the asbestos abatement program not more than $250,000,000 for each of fiscal years 1991, 1992, 1993, 1994, and 1995.".

(b) SPECIFIC PROGRAMS.—Subsection (b) of section 512 is amended by striking out paragraph (2) and inserting in lieu thereof the following:

"(2) Of those sums appropriated for the implementation of this title, not more than 5 percent may be reserved during each fiscal year for the administration of this title and for programs including (but not limited to) the following:

"(A) The establishment of training centers for contractors, engineers, school employees, parents, and other personnel to provide instruction, in accordance with title II of the Toxic Substances Control Act (15

U.S.C. 2641 et seq.), on asbestos assessment and abatement.

"(B) The development and dissemination of abatement guidance documents to assist in evaluation of potential hazards and the determination of proper abatement programs.

"(C) The development of rules and regulations regarding inspection, reporting, and recordkeeping.

"(D) The development of a comprehensive testing and technical assistance program.

"(3) Of those sums appropriated for any fiscal year for the implementation of this title, the Administrator may use not more than 5 percent to provide grants to States for the following purposes:

"(A) Assisting local educational agencies in performing the periodic reinspections and training activities required under title II of the Toxic Substances Control Act (15 U.S.C. 2641 et seq.).

"(B) Establishing and maintaining programs to accredit personnel performing asbestos inspections and response actions.".

SEC. 12. CONFORMING AMENDMENTS TO ASBESTOS TRUST FUND.

(a) AMOUNTS TRANSFERRED TO TRUST FUND.—Section 5(b)(1) of the Asbestos Hazard Emergency Response Act of 1986 (Public Law 99-519) is amended—

(1) in subparagraph (A), by striking out "as in effect on the date of the enactment of this Act, and" and inserting in lieu thereof a comma;

(2) in subparagraph (B), by striking out the period at the end and inserting in lieu thereof ", and"; and

(3) by adding at the end the following new subparagraph:

"(C) amounts received as proceeds from any judgment recovered in any suit brought pursuant to section 508(a)(1) of the Asbestos School Hazard Abatement Act of 1984 (20 U.S.C. 4017(a)(1))."

(b) EXPENDITURES FROM TRUST FUND.—Section 5(d) of such Act is amended by striking out "as in effect on the date of the enactment of this Act".

SEC. 13. TECHNICAL AMENDMENTS.

(a) SECTION HEADINGS.—(1) Section 501 is amended by striking out "SEC. 501." and inserting the following section heading:

"SEC. 501. SHORT TITLE.".

(2) Section 502 is amended by striking out the section heading and "SEC. 502." and inserting in lieu of the section heading the following:

"SEC. 502. FINDINGS AND PURPOSES.".

(3) Section 503 is amended by striking out the section heading and "SEC. 503." and inserting in lieu of the section heading the following:

"SEC. 503. ASBESTOS HAZARD ABATEMENT PROGRAM.".

(4) Section 504 is amended by striking out the section heading and "SEC. 504." and inserting in lieu of the section heading the following:

"SEC. 504. STATE RECORDS AND PRIORITY LISTS.".

(5) Section 505 is amended by striking out the section heading and "SEC. 505." and inserting in lieu of the section heading the following:

"SEC. 505. FINANCIAL ASSISTANCE.".

(6) Section 506 is amended by striking out "SEC. 506." and inserting the following section heading:

"SEC. 506. ADMINISTRATIVE PROVISIONS.".

(7) Section 507 is amended by striking out "SEC. 507." and inserting the following section heading:

"SEC. 507. ANNUAL REPORT.".

(8) Section 508 is amended by striking out "SEC. 508" and inserting the following section heading:

"SEC. 508. RECOVERY OF COSTS.".

(9) Section 509 is amended by striking out "Sec. 509." and inserting the following section heading:

"SEC. 509. EMPLOYEE PROTECTION.".

(10) Section 510 is amended by striking out "Sec. 510." and inserting the following section heading:

"SEC. 510. AFFECT ON RIGHTS UNDER OTHER LAWS."

(11) Section 511 is amended by striking out "Sec. 511." and inserting the following section heading:

"SEC. 511. DEFINITIONS.".

(12) Section 512 is amended by striking out "Sec. 512." and inserting the following section heading:

"SEC. 512. AUTHORIZATION.".

(b) Subsection Headings.—(1) Section 502(a) is amended by inserting "Findings.—" after "(a)".

(2) Section 502(b) is amended by inserting "Purpose.—" after "(b)".

(3) Section 503(a) is amended by striking out "(1)" and inserting in lieu thereof "Abatement Program.—".

(4) Section 503(b) is amended by inserting "Duties.—" after "(b)".

(5) Section 504(a) is amended by inserting "Records.—" after "(a)".

(6) Section 504(b) is amended—

(A) by inserting "Priority List.—" after "(b)";

(B) by inserting "activities and other response actions" after "abatement" each place it appears in subparagraphs (A) and (B) of paragraph (1);

(C) in paragraph (1)(B), by striking out "section 503(b)(3) and"; and

(D) in paragraph (4)(C), by inserting a comma after "per capita income".

(7) Section 505 is amended—

(A) in subsection (a), by inserting "ASSISTANCE PROGRAM.—" after "(a)";

(B) in subsection (b), by inserting "APPLICATION SUBMISSION.—" after "(b)";

(C) in subsection (c), by inserting "REVIEW OF APPLICATION.—" after "(c)";

(D) in subsection (e), by inserting "AMOUNT OF LOAN OR GRANT.—" after "(e)";

(E) in subsection (f), by inserting "LOAN AGREEMENT.—" after "(f)"; and

(F) in subsection (g), by inserting "APPLICATION REQUIREMENTS.—" after "(g)".

(6) Section 506(a) is amended by inserting "REGULATIONS.—" after "(a)".

(7) Section 506(d) (as redesignated by section 7) is amended—

(A) by inserting "OTHER AUTHORITY.—" after "(d)"; and

(B) by inserting a comma after "standards" the first place it appears.

(8) Section 508(a) is amended by inserting "LOAN CONDITION.—" after "(a)".

(9) Section 508(b) is amended by inserting "EXPEDITIOUS RECOVERY.—" after "(b)".

(c) MISCELLANEOUS TECHNICAL AMENDMENTS.—(1) Section 505(b) is amended in paragraph (1) by striking out the comma after "educational agency".

(2) Section 505(c) is amended—

(A) in paragraph (2), by inserting "and" after the semicolon at the end of subparagraph (A); and

(B) in paragraph (2), by inserting a comma after "confined space" in subparagraph (B)(ii) and after "techniques" in subparagraph (B)(iv).

(3) Section 505(e) is amended by striking out "per centum" both places it appears and inserting in lieu thereof "percent".

(4) Section 505(g) is amended—

(A) by redesignating the subparagraph (B) appearing after paragraph (3) as paragraph (4) and conforming the margin accordingly; and

(B) by inserting a comma in paragraph (4) (as so redesignated) after "section 512(b)(1)".

(5) Section 508 is amended by striking out "sections" and inserting in lieu thereof "section".

(6) Section 511 is amended—

(A) by striking out "For purposes of this title—" and inserting in lieu thereof "For purposes of this title:";

(B) by striking out "the" at the beginning of each paragraph and inserting in lieu thereof "The";

(C) by striking out the semicolon at the end of each paragraph and inserting in lieu thereof a period;

(D) by striking out the word "each" in paragraph (3); and

(E) by inserting "secondary" before "school" in paragraph (5).

Mr. **Whittaker**. Thank you, Mr. Chairman. I am delighted to be here today to begin the reauthorization of the Asbestos School Hazard Abatement Act.

ASHAA embodies our desire to aid needy schools that meet the requirements of AHERA, the Asbestos Hazard Emergency Response Act. This legislation must be reauthorized this year in order to ensure continued adequate funding of this important program. ASHAA has so far distributed nearly $250 million in loans and grants to local educational authorities. We will hear testimony today indicating that these funds have financed one-third of the highest priority asbestos response actions. This, in combination with projects financed at the local level, has significantly reduced the threat posed by the most serious school asbestos problems.

Given the budgetary realities imposed on all of us by the Gramm-Rudman budget target, I do believe, however, that it is an exercise in futility to double this program's authorization. Appropriations without authorizations will do nothing to aid our schools. In light of these constraints, we need to focus on a more steady funding of ASHAA's program. I hope that in today's hearing we can discuss the best use of the available dollars. We must ensure that the projects financed by ASHAA produce the greatest health benefit for the money that is spent.

I understand we will have testimony from both sides of the controversy surrounding the recent article in Science magazine. I look forward to hearing the latest thinking on the nature of the threat posed by asbestos. I hope that the Environmental Protection Agency will update us on their continuing efforts in this area. Most of all, I want to know how we can use the available dollars to clean up more schools and reduce the risk of disease for more children.

Thank you, Mr. Chairman.

Mr. **Luken**. Thank you, Mr. Whittaker.

I mentioned earlier in my opening statement that we are still working on the bill introduced by Mr. Florio. It has a permanence and so we're going to consider it, even though Mr. Florio has gone on to other pastures. But since he has, the other gentleman from Ohio, Mr. Eckart, has adopted the platform and policies of Mr. Florio—at least with reference to this legislation, I believe. He is carrying on this great work and we appreciate that. He is here and we ask him for any opening statement he may have.

I'm not talking about increasing taxes, now.

Mr. **Eckart**. I was about to say, I hope that's not a reference to redistricting. I didn't know that my district was going to carry me to New Jersey.

Mr. Chairman, thank you. My Republican colleague and the Chair have articulated a number of my concerns and my hopes. My ongoing fear is that there are 15 million schoolchildren and 1.5 million school employees working in more than 40,000 suspect buildings around this country. The controversies notwithstanding, I think we all know that a healthy educational environment is as appropriate and necessary for a child's success as the simple providing of the education.

This program and its successor on reauthorization I think are designed to try to assist school districts. The extent to which we are or are not meeting that test, the extent to which government agencies responsible for implementing it are or are not meeting that test, will be the focus of this reauthorization. So I look forward to the hearing and ultimately to the markup, to the comments of my constituents, and certainly an old friend who is here on new matters from the EPA.

As all of us with children in these circumstances fully appreciate, it is sometimes the quiet and silent things in life that prove to leave the longest lasting impressions. School environments that are unhealthy is one area in which we pay a very extreme premium for it.

I thank my colleagues.

Mr. **LUKEN**. Thank you, Mr. Eckart.

And, unobtrusively walking into the room is the gentleman from Maryland, Mr. McMillen. We are just completing opening statements on this important issue, and it is your turn if you have any statement.

Mr. **McMILLEN**. Thank you, Mr. Chairman. I appreciate the chance to say a few words.

I want to voice my support for this bill, H.R. 3677, and I'm pleased that we will have a chance to listen to the distinguished witnesses figuring out enhanced ways to reduce the health threat posed to some 15 million children exposed to asbestos in the classroom.

I think it is particularly disconcerting to me to realize that we are only able to accommodate about 11 percent of the requests for assistance received in the 1990 cycle, so the magnitude of need is very important. I certainly support an increased authorization for this program and want to make sure they're allocated in an efficient and unbiased manner. So I am pleased that this bill requires a reevaluation of the application, including the financial and need criteria used in determining eligibility. I am pleased to support this legislation.

Mr. **LUKEN**. I thank the gentleman from Maryland.

We'll now get into the meat of the batting order and call up the EPA, Ms. Linda Fisher. That's just an old baseball saying, you know. We could call you the "cleanup" batter. You wouldn't object to that, would you?

Ms. **FISHER**. No, sir.

Mr. **LUKEN**. Without objection, the statement of Ms. Fisher is introduced into the record. You may proceed in any way you think will be helpful.

STATEMENT OF LINDA J. FISHER, ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY

Ms. **FISHER**. Thank you, Mr. Chairman. I appreciate the opportunity to testify before your subcommittee today, and I would like to introduce to the panel Mr. Michael Stahl, who is the Division Director that runs the asbestos abatement program. He will be assisting me in answering questions of the subcommittee.

I welcome this opportunity to clarify the Agency's policy to reduce asbestos exposure in the Nation's schools and to set the record straight on a number of recent studies and reports regarding asbestos. Allow me first to address some of the specific concerns that you may have regarding how EPA has conducted the asbestos in schools program.

In 1986, Congress passed the Asbestos Hazard Emergency Response Act, AHERA, which directed EPA to issue regulations regarding public and private elementary and secondary schools to inspect their buildings, to develop asbestos management plans, and to submit those plans to States, and then to proceed to implement appropriate response action. That response action can include such things as in-place management, repair, encapsulation or removal. Schools are required in carrying out their authorities to use accredited personnel.

AHERA also directed EPA to issue a model accreditation plan for training and accrediting inspectors, planners, and abatement contractors and workers, and to promulgate final regulations for asbestos inspection and management. The Agency completed all of its requirements in the timeframes given them under the statute. Today, at least 94 percent of the Nation's schools have completed their inspection and maintenance plans. Therefore, after more than 3 years of hard work by EPA, the States and the schools, we have in place a frame work for managing asbestos in schools.

In 1987, EPA issued its model plan for training and accreditation of asbestos inspectors, planners and abatement contractors and workers. The model plan specified criteria for initial training, examination, and included a continuing education requirement. AHERA required States to adopt contractor accreditation plans that were at least as stringent as those called for by EPA. Asbestos management personnel can gain accreditation either by meeting the State requirements or by completing an EPA approved training course and passing an exam. We have published a model curriculum for these courses in order to promote national uniformity and high quality.

EPA has also financed and implemented several projects in addition to the model plan that were designed to develop and enhance State programs. The Agency, using the National Conference of State Legislatures, developed model legislation to assist them in developing certification programs that would be based on fees to help States fund their operations. We have also provided about $5 million to States to support their asbestos management training activities.

These efforts have paid off. We estimate today that we have approximately 100,000 people who are accredited under AHERA for asbestos-related work. Forty-seven States have either an AHERA accreditation program or a training and certification program which we hope to upgrade to meet the AHERA levels.

Forty-two of those 47 States have extended their requirements to cover all abatement work in both public and commercial buildings, as well as in schools. Additionally, we have 587 training providers and offer over 1,100 EPA-approved courses.

EPA has begun a major evaluation of all aspects of the AHERA program. The goal is to answer several questions that have been asked frequently, such as, are the inspections and the response actions being properly conducted in the schools; have the management plans proved to be useful and accurate in their information;

have the maintenance and custodial workers received adequate training to protect themselves and others; and has EPA effectively notified schools of all of its AHERA requirements? We hope to see the results of this evaluation in a few months.

I would like now to discuss the school loan and grant program, which was established in 1984. As you know, ASHAA established a program within EPA to provide financial assistance to public and nonprofit schools to help them conduct their asbestos projects. Under the provisions of ASHAA, EPA provides financial assistance to the local education agencies which meet two criteria—one, they have serious asbestos hazards, and two, they have demonstrated financial need.

In May of this year, we announced our 1990 awards. Since the program began in 1985, including the 1990 awards, we have distributed $245 million ASHAA loans and grants to fund over 2,400 individual abatement projects. This investment of Federal funds has addressed a significant portion of the most severe asbestos problems in the most needy schools.

This is the final year of the ASHAA program and legislation before this committee proposes to reauthorize it. While the administration does not oppose the reauthorization at this time, we are concerned that it may not be the best use of scarce Federal resources for a problem which we have considered to be largely a State and local responsibility.

Having discussed the issues relating to our administration of the school asbestos program, let me take a minute to turn to another topic; that is, the controversy over the risks associated with exposure to asbestos.in buildings.

Much of the recent debate surrounds the level of danger posed by various types of asbestos fibers. Some news reports have seemed to indicate that one fiber can kill. Other sources, such as the January 19 article in Science magazine, have appeared to suggest that the most common forms of asbestos are actually safe to humans.

This controversy has obvious implications for any Federal policies concerning asbestos. I appreciate the opportunity to clarify EPA's current policies and requirements for asbestos control in schools and in public and commercial buildings.

First of all, EPA believes that, although asbestos is hazardous, human risk of asbestos disease depends upon exposure. Asbestos is known to cause cancer and other disease if the fibers are inhaled into the lung and remain there. This knowledge is based on studies involving human exposure, particularly at very high levels. However, the mere presence of a hazardous substance such as asbestos that might be in a ceiling no more implies disease than the potential for poison in a medicine cabinet implies poisoning. Asbestos fibers must be released from the material in which they are contained, and an individual must breathe those fibers in order to incur any chance of disease.

Point No. 2. Prevailing asbestos levels in buildings seem to be very low. Accordingly, the health risk to building occupants also appears to be very low.

In 1987, an EPA study found that the air levels in a segment of Federal buildings with management programs were so low as to be virtually indistinguishable from levels outside these buildings.

While these data are not conclusive, and we are seeking more information through a major research effort, the present evidence suggests that building occupants face only a very slight risk.

Point No. 3. Removal is often not a building owner's best course of action to reduce asbestos exposure. Although we believe that most asbestos removals that have currently been taken have been conducted properly, asbestos removal practices, by their very design, disturb the material and can significantly elevate levels of the fiber in the air. Unless all safeguards are properly applied and strictly adhered to, exposure in buildings can rise perhaps to levels where we know disease can occur just because a removal has occurred. Consequently, an ill-conceived or poorly conducted removal project can actually increase risk rather than decrease or eliminate it.

Point No. 4. EPA only requires asbestos removal in order to prevent significant public exposure to asbestos during building renovation or demolition. We do not require removal as part of the asbestos in schools program. Prior to a major renovation or demolition, asbestos materials that are likely to be disturbed or damaged, such that significant amounts of asbestos could be released, must be removed using approved practices under EPA's NESHAP program. Asbestos removal before we swing wrecking balls into buildings is necessary in those cases to protect public health. However, this cannot be said of an arbitrary asbestos removal project which actually could increase health risks unless performed properly. That is why EPA has not mandated as part of its school program asbestos removal beyond this one NESHAP requirement.

Fact No. 5. EPA does recommend in-place management whenever asbestos is discovered. A proactive, in-place management program will usually control fiber release, particularly when the materials are not significantly damaged and unlikely to be disturbed. In-place management does not mean "do nothing." It involves training, awareness, and notification, as well as special control procedures and periodic surveillance. Taken together, these measures can effectively minimize asbestos risks in most situations without the cost and the disruption of a removal.

I hope that I have addressed the issues of interest to this subcommittee, and I would be pleased to answer any questions that you might have concerning our asbestos program.

Thank you, Mr. Chairman.

[The prepared statement of Ms. Fisher follows:]

PREPARED STATEMENT OF LINDA J. FISHER, ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. Chairman and distinguished members of this subcommittee, I am Linda Fisher, Assistant Administrator for the Office of Pesticides and Toxic Substances [OPTS] of the U.S. Environmental Protection Agency. I very much welcome the opportunity to clarify the Agency's policies to reduce asbestos exposure in the Nation's schools. I would also like to set the record straight with regard to a number of recent studies and reports which have received a lot of media attention.

Allow me to first address some of the specific concerns you have regarding the EPA asbestos in schools program.

Implementation of AHERA

As you know, on October 22, 1986, President Reagan signed the Asbestos Hazard Emergency Response Act [AHERA], under which the EPA is directed to issue regulations that require public and private elementary and secondary schools to inspect their buildings for asbestos, develop asbestos management plans and submit them to their State, and to implement appropriate response actions such as in-place management, repair, encapsulation or removal. AHERA also required schools to use accredited personnel to carry out these inspection management activities.

AHERA established very ambitious deadlines for EPA and the schools to implement this program. EPA was required to issue by April 1987 a Model Accreditation Plan for training and accrediting inspectors, planners, and abatement contractors and workers. EPA was also required to promulgate final regulations for asbestos inspection and management by October 1987. The Agency met both these deadlines. The nation's schools also faced a difficult deadline of October 1988 for completing inspections and submitting management plans to States. Congress later amended AHERA to give schools the option of extending this deadline to May 1989. EPA's analysis indicates that at least 94 percent of the nation's schools now have completed their inspections and management plans. Thus, after more than 3 years of hard work by EPA, States, and the schools, a framework for managing asbestos risks in schools is now in place.

Accreditation of Asbestos Personnel

As mentioned above, EPA was directed to issue under AHERA a model accreditation plan to provide training and accreditation for persons who inspect, manage and abate asbestos in schools. The training and accrediting of sufficient numbers of inspectors and planners to meet the demands being placed on school districts by the AHERA requirements posed a major challenge for us. The competence of these accredited persons, and the quality of the work they perform in our schools is an ongoing concern for EPA. EPA has substantially increased the number of competent asbestos professionals. In fact, we believe that EPA's university training centers, and a couple of leading labor training programs alone have accredited nearly 60,000 individuals. In all, we estimate 100,000 or more AHERA-accredited persons are available nationally for asbestos-related work today.

The model plan specified criteria necessary for initial training, examination and continuing education required under AHERA for accreditation of persons in all asbestos management disciplines, including inspectors, management planners, abatement supervisors and abatement workers. These persons can be accredited by States, which are required under AHERA to adopt contractor accreditation plans at least as stringent as the EPA model plan by July 1989 or by completing an EPA-approved training course and passing an examination.

We developed a system to insure the fast, efficient, and competent review of proposed accreditation courses submitted to EPA by private training organizations. As of February 1990 a total of 587 training providers are offering 1,113 EPA-approved training courses for accreditation, including 487 asbestos worker courses, and 373 courses for contractors and supervisors. EPA has promoted national consistency by publishing model course curricula for AHERA contractor, inspector and management planner training, while model materials for abatement workers and custodial workers will be available this summer.

EPA has financed and implemented several projects in addition to the Model Plan that were designed to develop and enhance State accreditation programs: EPA through the National Conference of State Legislatures [NCSL], provided the States with model legislation to assist them in developing contractor certification programs and fee-based funding options to support these programs; since 1985, EPA has awarded $2.5 million in grants to 39 States for the purpose of establishing abatement contractor and worker certification programs; in 1987, the Agency approved grants totalling more than $1 million for 17 States to help them develop AHERA inspector and management planner accreditation programs; and in 1990, EPA has recently distributed an additional $1.5 million for State activities, which included accreditation programs as part of our effort to enhance State asbestos programs.

Today, due in part to EPA seed funding and technical assistance, 20 States now have accreditation programs that meet AHERA standards for abatement contractors and workers who conduct school projects. In addition, another 27 States have some type of licensing or certification program for asbestos abatement which can upgrade to AHERA levels. Of these 47 States, 42 have extended their asbestos training and certification requirements to cover abatement work in public and commercial buildings as well as schools. This is a dramatic improvement from 1985, when only four States had any contractor certification program at all. Now only three States have no certification program at all.

Several other training and accreditation efforts should be noted. First, EPA has provided funding to the National Asbestos Council [NAC], the nation's largest interdisciplinary asbestos professional organization, to develop standard national examinations for AHERA accreditation disciplines and promote reciprocity among States. In addition, in 1989 and 1990, EPA will provide a total of $1.9 million to joint labor management trust funds to increase asbestos worker training. Also, the Asbestos National Emission Standard for Hazardous Air Pollutants [NESHAP], which requires asbestos removal to protect public health during major building renovations and demolitions, is being revised this summer to include new training for the onsite work supervisor. Finally, EPA, under the Toxic Substances Control Act [TSCA], extends the protections afforded by the U.S. Occupational Safety and Health Administration [OSHA] to private sector asbestos workers to State and local government employees.

Evaluation of AHERA

As the AHERA program has progressed, EPA has begun to evaluate the effectiveness of the inspection and management regulations and the accreditation programs we have established. A major evaluation of the AHERA program is underway, and we should begin to receive results from some portion of the evaluation in the next 6 to 12 months.

Five studies will comprise the AHERA evaluation. The first study will include site visits and reinspections. The objective of this study is to ascertain whether or not inspections mandated by AHERA are being done properly and whether material is properly assessed.

The second study will measure the quality of the management plans in providing useful, accurate, and detailed information. Management plans will be compared to the original AHERA inspection reports. An analysis of the options in the plans for managing the asbestos will be done to see if they are specific enough to provide real guidance to the Local Education Agencies [LEA's]. Between 200 to 400 schools will be completely reinspected and their management plans will be reviewed for accuracy and completeness.

The third study includes site visits to determine whether maintenance and custodial personnel have received training, and also examines the operation and maintenance plan and determines whether it is being implemented.

The fourth study deals with the effectiveness of notification for AHERA requirements. This study seeks to identify the people who were notified, the medium through which the notification was accomplished, and the response of the people who were notified.

The fifth study is a series of onsite visits designed to evaluate response actions. This study seeks to determine what response actions have been or are being done and whether or not they are completed in a professional manner.

Asbestos Loan and Grant Program

I would like now to discuss the school loan and grant program established under the Asbestos School Hazard Abatement Act [ASHAA] of 1984.

As you know, ASHAA established a program within EPA to provide financial assistance to public and nonprofit private schools to help them conduct asbestos abatement projects. Under the provisions of ASHAA, EPA is to provide financial assistance to LEA's which have both serious asbestos hazards and a demonstrated financial need.

Since its inception in 1985, EPA has distributed a total of $245 million in ASHAA funds, for 2,400 abatement projects. Public schools have been awarded $231.6 million. Private schools have received $31.6 million. As a result of the abatement projects conducted using ASHAA funding, exposure of students and school employees to asbestos will be reduced by an estimated 19.4 million hours each week.

Regarding the 1990 award cycle, $43,443,000 was distributed to 129 LEA's. EPA reviewed 863 applications submitted by public school districts and private schools from 46 States. Those applications contain 3,352 separate abatement projects, in 1,856 schools. Our review of these projects included approximately 100 field inspections by EPA Regional personnel to verify project descriptions and hazard data. The awards to the 129 LEA's will fund 206 projects in 168 schools, further reducing asbestos exposure to students and school employees by 2 million hours per week.

Including the 1990 awards distributed in May, a total of $245 million in Federal funding has been provided for asbestos abatement in local schools over the past 5 years. This investment of Federal funds has addressed a significant portion of the most severe asbestos hazards in the most needy schools. While we do not oppose reauthorization at this time, we are concerned that this may not be the best use of scarce resources for a problem which is essentially a State and local responsibility.

Risk, Exposure, and Abatement Issues

Now that I have discussed issues relating to EPA's administration of AHERA and ASHAA, let me turn to another topic.

Regrettably, EPA's asbestos policies have recently been the subject of several erroneous news reports and at least two seemingly contradictory exposure studies which have confused, rather than enlightened, the public.

For example, a national television news report on asbestos in floor tile last November suggested that dangerous fiber levels were generated through routine floor stripping operations to remove wax from tile. This news report promoted a "one fiber can kill" image in the public's mind of an asbestos material that rarely if ever releases fibers under normal conditions. On the other hand, an article on asbestos published on January 19 in Science magazine, followed by various editorials, has been interpreted to suggest that the most common form of asbestos fibers in buildings are "safe" and do not warrant our attention or concern.

Frankly, I appreciate this chance to clarify the Agency's current policies and requirements for asbestos control in schools and public and commercial buildings. I would like to provide that clarification in the form of five facts.

FACT ONE: Although asbestos is hazardous, human risk of asbestos disease depends upon exposure.

Asbestos is known to cause cancer and other disease if fibers are inhaled into the lung and remain there. This conclusion is based upon studies involving human exposure, particularly exposure at high levels. While evidence is better for some types of asbestos, there is no clear proof that other types are not as potent. EPA, based on careful evaluation of available scientific evidence, has adopted a prudent approach in its regulations of assuming that all fibers are equally potent. While, as the Science article indicated, exposure to chrysotile or common white asbestos may be less likely to cause some asbestos-related diseases, various scientific organizations, including the National Academy of Sciences, support EPA's more prudent regulatory approach.

With respect to the so-called "one fiber can kill" image, the present scientific evidence will not allow us to state unequivocally that there is a level of exposure below which there is a zero risk, but the risk in fact could be negligible or even zero.

However, the mere presence of a hazardous substance, such as asbestos on an auditorium ceiling, no more implies disease than a potential poison in a medicine cabinet or under a kitchen sink implies poisoning. Asbestos fibers must be released from the material in which they are contained, and an individual must breathe those fibers in order to incur any chance of disease.

While scientists have been unable to agree on a level of asbestos exposure at which we, as public policy makers, can confidently say, "there is no risk," this does not mean that all or any exposure is inherently dangerous. To the contrary, almost every day we are exposed to some prevailing level of asbestos fibers in buildings or experience some ambient level in the outdoor air. And, based upon available data, very few among us, given existing controls, have contracted or will ever contract an asbestos-related disease at these low prevailing levels.

FACT TWO: Prevailing asbestos levels in buildings—the levels that you and I face as office workers or occupants—seem to be very low, based upon available data. Accordingly, the health risk to building occupants—you and me—also appears to be very low.

Indeed, a 1987 EPA study found that air levels in a segment of Federal buildings with management programs were so low as to be virtually indistinguishable from levels outside these buildings. While these data are not conclusive and we are seeking more information through a major research effort, the present evidence suggests that building occupants face only a very slight risk. Severe health problems attributed to asbestos exposure have generally been experienced by workers in industries such as shipbuilding, where they were constantly exposed to very high fiber levels in the air, often without any of the worker protection now afforded to them under the law.

FACT THREE: Removal is often not a building owner's best course of action to reduce asbestos exposure. In fact, an improper removal can create a dangerous situation where none previously existed. It is important for everyone to understand that AHERA regulations do not requirement removal of asbestos.

Although we believe most asbestos removals are being conducted properly, asbestos removal practices by their very design disturb the material and significantly elevate air levels, which must be carefully contained during the removal project. Unless all safeguards are properly applied and strictly adhered to, exposure in the building can rise, perhaps to levels where we know disease can occur. Consequently, an ill-conceived or poorly conducted removal project can actually increase rather than eliminate risk.

FACT FOUR: EPA only requires asbestos removal in order to prevent significant public exposure to asbestos during building renovation or demolition.

Prior to a major renovation or demolition, asbestos material that is likely to be disturbed or damaged to the extent that significant amounts of asbestos would be released, must be removed using approved practices under EPA's asbestos NESHAP. Demolishing a building filled with asbestos, for example, would likely result in significantly increased exposure and could create an imminent hazard. Clearly, asbestos removal before the wrecking ball swings into action is appropriate to protect public health. However, this cannot be said of arbitrary asbestos removal projects, which, as noted above, can actually increase health risk unless properly performed. This, in part, is why EPA has no mandated asbestos removal from buildings beyond the NESHAP requirement, which has the effect of gradually and rationally taking all remaining asbestos building materials out of the inventory.

FACT FIVE: EPA does recommend in-place management whenever asbestos is discovered.

Instead of removal, a proactive in-place management program, which includes training, awareness, special control procedures and periodic surveillance, will usually control fiber release, particularly when the materials are not significantly damaged and not likely to be disturbed. In-place management, of course, does not mean "do nothing." When a building owner finds asbestos in his facility and ignores it, he can't establish and enforce procedures to ensure that the asbestos is not disturbed. He can't ensure that fiber levels do not rise. An in-place management program does not have to be extraordinarily expensive. Management costs will depend upon the amount, condition and location of the material.

As I am sure you are aware, maintenance and service workers in these buildings, in the course of their daily activities, may disturb materials and can elevate asbestos fiber levels, especially for themselves, if they are not properly trained and protected. For these persons, risk may be significantly higher. This is a primary concern of EPA and other Federal, State and local agencies which regulate asbestos, and the Agency is currently reviewing recent studies regarding asbestos exposure of maintenance and service workers. An active in-place management program will reduce any unnecessary exposure to these workers and others.

To summarize the facts, as we now know them: While asbestos is clearly hazardous, its risk to human health depends on the degree of exposure; asbestos air levels in buildings, and corresponding risk to occupants, appears to be very low, given available data; asbestos removal, while necessary to protect public health during renovation or demolition, is not otherwise required by EPA and is often not the building owner's best abatement choice; and EPA's asbestos program for schools and its guidance for other building owners, which is founded on in-place management, is designed to keen these low prevalent fiber levels low, through recognition and management.

We agree with Dr. Arthur Upton, former director of the National Cancer Institute and head of New York University's Institute of Environmental Medicine, who, in a letter to the New England Journal of Medicine, advocates caution in dealing with asbestos until better information is available. Dr. Upton maintains that "abandonment of asbestos inspection and abatement is not justified" by the current data.

Further, we are presently attempting to increase the knowledge base on asbestos on several fronts, which include a public dialogue, and a major research program.

Through the public dialogue process . . . EPA has sponsored a policy dialogue among groups which have a major interest in the asbestos policy regarding public and commercial buildings. These groups include building owners, realtors, mortgage bankers, insurers, building workers unions, public health interests, asbestos contractors and consultants, asbestos manufacturers, and representatives of Federal, State and local organizations which have responsibility for the development and implementation of asbestos policies.

The policy dialogue is now in its final stages, and EPA expects the dialogue participants to present the Agency with a set of general recommendations about what they think should be done to address the issue of asbestos in public and commercial buildings. The dialogue participants have discussed at length accreditation, training, and improper removal issues. EPA has made a public commitment to consider thoroughly any recommendations offered by the dialogue participants and to decide, as soon as possible, whether to carry out any or all of the recommendations.

Through the Health Effects Institute Research . . . Finally, asbestos research initiated by the Health Effects Institute [HEI] in Boston with EPA, Congressional and private sector support will include comprehensive monitoring studies to better characterize asbestos exposure in buildings. HEI's initial literature review will also examine current research which deals with fiber potency.

At EPA, we are particularly concerned about potential "peak exposures"—those which might occur in buildings when material is disturbed or accidentally damaged. Such disturbance can elevate levels not only for workers, but perhaps also for building occupants who might ordinarily not experience high levels. "Peak" levels have been known to reach the range of occupational exposure for maintenance and service personnel. HEI's research should be very helpful in increasing our knowledge on the frequency, duration and intensity of these "peaks".

I hope this addresses the issues of interest to the subcommittee regarding EPA's asbestos programs, and sets the record straight on the Agency's policies and recommendations relating to asbestos management in the nation's schools. I appreciate the opportunity to discuss these issues. I will be happy to answer any questions that the subcommittee may have.

Mr. LUKEN. Well, do you think we should reauthorize ASHAA?

Ms. FISHER. Mr. Chairman, carefully constructed words from the administration is that we do not oppose it at this time. Given the demands of a lot of schools placed on them by the AHERA program, my sense is that they are strongly in need of these funds.

Mr. LUKEN. That's an improvement. Certainly the whole thing is an improvement over previous administrations. I'm not sure that's going to get the job done, but it's an improvement. It may not be good enough, but it's better.

I believe you said that for occupants in buildings the risk is low for asbestos, for contacting disease or being injured; is that right? You said that for occupants, the risk is low.

Ms. FISHER. The risk of exposure to normal building occupants, such as you and I in this building or in our offices and homes, is generally thought to be very low. At those low levels——

Mr. LUKEN. I didn't think you said normal building occupants, but that's what you meant, right, regardless of what you said? When you said the risk was low, you were referring to the risk of what?

Ms. FISHER. Exposure to levels of asbestos that would cause them risk. We're trying to distinguish the exposures that you and I living or working in buildings might be exposed to as compared to what perhaps service employees or people that work in and around asbestos and might get much higher and more elevated levels of exposure through their work.

Mr. LUKEN. All right. Then those who are in maintenance, if there is asbestos in the building, then they very well might be exposed by the nature of their work, by frequently being in contact with the areas where the asbestos is likely to be; isn't that right?

Ms. FISHER. They could be——

Mr. LUKEN. I mean where it is. I shouldn't say likely to be, but where it is. Maintenance people.

Ms. FISHER. They could be exposed to higher levels that general building occupants, that's correct.

Mr. LUKEN. Dangerous levels?

Ms. FISHER. It depends on the building and it depends on what types of asbestos might be in the building, and whether or not they're trained to work in and around asbestos.

Mr. LUKEN. Then isn't it a little dangerous to say—not dangerous, but isn't it inaccurate to say that asbestos needn't be removed?

Is there always a danger to certain people when the asbestos is there, for certain occupations?

Ms. **Fisher**. One of the important components of the school program is that when inspection has been done of a building, that they notify the employees where the asbestos is. That is so the service employees, as you suggest, might be able to protect themselves as they are working in and around asbestos. I mean, it doesn't mean necessarily——

Mr. **Luken**. We're not suggesting that janitors are going to wear some of those spacesuits, are we?

Ms. **Fisher**. Well, they wouldn't have to do that, but they might want to be careful of actions they take that might increase the disruption or disturbance of asbestos.

Mr. **Luken**. But they just might not know what those actions are. They might just be careless.

Ms. **Fisher**. Well, under AHERA——

Mr. **Luken**. We wouldn't want to penalize them with some of the penalties that are incumbent upon asbestos exposure just for being negligent, would we?

Ms. **Fisher**. Under the schools program——

Mr. **Luken**. Incidentally, I admit that right now I'm trying to be provocative, and I don't necessarily adhere slavishly to everything I'm suggesting—although none of it is inaccurate. But we are dealing with a lethal subject, a potentially lethal subject.

Ms. **Fisher**. There are ways that asbestos workers, people that work in and around asbestos, can protect themselves short of requiring removal.

Mr. **Luken**. But there are, but we're not talking about—and I've been to them, and I'm sure you have, too, and I've been to these buildings where they bring the teams in and they're all dressed up in their asbestos suits to protect themselves against the asbestos. They look like asbestos suits, whatever they are. They look like men from Mars. They've got all that fancy equipment and everything. But that doesn't apply to the ordinary, normal school, where we've got a janitor or two around who don't have all that equipment and don't have all that instruction, and they're doing a thousand other things. They're not just doing one job.

Ms. **Fisher**. Schools are, under AHERA, required to have training for their maintenance workers. Part of the training is to educate them as to where the asbestos might be located and how not to disturb it. So when I talk about training, it is not——

Mr. **Luken**. I know. You said that before. That's the reason I responded with what I just said. I don't think we're getting anywhere on this particular point. You can have all the training programs and all the manuals and whatever, but if you've got a school building where there's a couple of maintenance people, maybe one, and each one of those has a thousand things to do, and they don't have all the fancy equipment and so on, what good are those rules and what good are those manuals? That person isn't going to have all of that at his or her fingertips at the time they are operating in the areas where the conditions for exposure are present.

I think those rules, if I may finish and elaborate a little, are fine when we're talking about contractors who have all the equipment, who go in specifically for the purpose of abating. But I don't think they are really, in fact, going to protect maintenance workers who are not going to be constantly mindful of those instructions that they've had for some time.

Ms. **Fisher**. Hopefully they would change the behavior of some of the maintenance people. I don't think we should recommend the wholesale removal of all asbestos anywhere because we're worried that some of the maintenance employees won't follow proper training.

Mr. **Luken**. We might disagree on that point.

Ms. **Fisher**. There are risks associated with the actual removal that might pose even greater risks to the maintenance employees as well as to the schoolchildren and everyone else in the building. What I would hope is that we could improve our training and education programs for all the people that are working in buildings that have asbestos in them and preserve the need to remove only in those situations where the asbestos is in a condition that it does need to be taken out.

Mr. **Luken**. Okay. Well, we could continue this. I find it a very interesting discussion, but other members will have questions, also.

Just let me turn to the issue of—do you think that schools, many of them, feel compelled to remove the asbestos today?

Ms. **Fisher**. Mr. Chairman, we are very worried that there has been a lot of misunderstanding or miscommunication of what EPA requires. In talking with various school districts——

Mr. **Luken**. That might mean the answer is "yes"?

Ms. **Fisher**. The answer is "yes".

Mr. **Luken**. Go ahead. I like the explanation, but I just wanted to make sure that——

Ms. **Fisher**. No, we are very concerned.

Mr. **Luken**. Go ahead with the explanation. I'm sorry.

Ms. **Fisher**. When I read Science magazine, which is a very prestigious journal, and it falsely states EPA's position concerning removals, that tells me we have a problem.

The Agency has met with a lot of individuals from different school districts, different school associations, and they have misinterpreted it. I have met with several members of the House and Senate who have said to me, quite frankly, they believe EPA mandates removal of asbestos in schools. So, absolutely, you are correct. We have a communication problem which we are trying to come to grips with, because the program and the law and our regulations do not require removal.

Mr. **Luken**. One final question. If you're a school administrator and you're looking at this issue, you say should I remove it, and then you get the advice, well, it's not necessary to remove it, that it can be entombed—that's a word of art, isn't it?

Ms. **Fisher**. Encapsulation.

Mr. **Luken**. Encapsulated or entombed. Entombed is used in some other areas. But to describe the same process of wrapping it up, protecting people from it, in place. That's what we're talking about, encapsulation, right?

Ms. **Fisher**. That's correct.

Mr. **Luken**. But that encapsulation is necessarily a temporary covering, isn't it, a temporary protection? There is the inevitability that somewhere down the line, if the school building lasts long enough, that encapsulation will deteriorate and the vulnerability will occur, right?

Ms. **Fisher**. That's correct. You can manage asbestos in place today, but several years down the road you may end up having to remove it.

Mr. **Luken**. So if you're making that decision, you might be inclined toward removal for that reason?

Ms. **Fisher**. I would hope not. I would hope that the balance of the concern about unnecessary exposure, as well as expensive removal, would lead people to a more proactive, in-place management and include in that a periodic inspection so that you would be able to track the condition of the asbestos. I don't think the argument that "because I may some day have to remove I will go ahead and remove it now" is a good one.

Mr. **Luken**. I suspect other members of the panel are going to question you on your response that makes the economic argument, so I will desist at this point and call upon the gentleman from Kansas for any questions he may have at this time.

Mr. **Whittaker**. Thank you, Mr. Chairman.

Ms. Fisher, I really have only one question which I don't think has been covered. Sometimes we hear a great deal about the theory that one fiber can kill. Yet we've never really required cleanup to that level.

What is the background range of asbestos fibers and what do we breathe in everyday, outdoor air?

Ms. **Fisher**. Congressman Whittaker, we don't have information as to what is the common outdoor level. That might vary in given locations of the country. We have, as part of the research effort that we have commissioned with the Health Effects Institute to look at, one of the issues they're going to focus on is what are background levels, ambient levels, and is there a way we can identify what, if any, risk is posed by exposure at that level. But we don't have a number that would give you kind of an across-the-board background.

Mr. **Whittaker**. All right. Thank you.

Mr. **Luken**. I thank the gentleman.

The gentleman from Ohio, Mr. Eckart, is recognized.

Mr. **Eckart**. Ms. Fisher, I'm not quite sure what the testimony reflects, but if not many people can explain what your position is, either that means we don't know your position or we don't understand your position.

With that caveat, let me just simply suggest that we probably are better served, if in fact we disagree, if people understand what we're disagreeing about.

Ms. **Fisher**. Are you talking about the legislation, or to remove or not to remove?

Mr. **Eckart**. The question of to remove or not to remove; that is the question.

We need to get that resolved, I suppose, to some greater degree, at least to clarify EPA's views.

Now, as to the matter before us, it is not sufficient to say "we do not oppose". I do not oppose my son becoming a millionaire. The question is whether or not I or he can do anything to influence that outcome in life. You need to figure out what you're going to do to influence the outcome of this bill, which I suspect has some significant interest to the EPA. So we're going to work on this bill with you or without you. You had best figure out what you're going to do with it, either in the context of administering it or influencing its outcome.

I have a couple of concerns. One is focusing on the whole per capita income question. Having been in the State legislature for 6 years, I understand fully that there are vagaries in the ability of school districts to do a wide variety of things. Some States have no income tax; some States have a peculiar basis of funding education with property taxes or excise taxes.

To what extent is per capita income, based on which you either make a cut or don't make a cut to be eligible for a program, a realistic assessment of a school district's ability to pay for a removal or encapsulation program?

Ms. **Fisher**. A couple of points. First of all, right now we do use the per capita income basis. We use that coming out of a broad discussion that we had with a variety of interested groups in how best to set the financial need test. We took a lot of comment from school associations, from PTA's and others, that are concerned about how we were going to allocate these funds. On the basis of that, we decided that the most equitable way to deal with the public schools was to use the per capita.

We have had about 4 to 5 years of experience with that. My sense is that there's growing concern that maybe this is no longer the best way, that there are several schools where the per capita income does not fit, particularly those schools that are in high cost-of-living areas. So the per capita income may be high, taking them over the trigger, but it doesn't reflect necessarily whether or not they really are more needy than some that meet the per capita test.

In response to concerns—and we get hundreds of letters from members of Congress and from school districts—we have made the decision to revisit the financial needs formula. Again, we will go out and get comment from the interested people, from the school associations and others, so that we come up with criteria that people feel more equitably distributes limited funds.

Another thought we have had—and we will also put to this group—is whether we should have an exceptions policy, so that you might use the per capita income generally across the board but set aside a certain category of money for people who are discriminated because that doesn't accurately reflect their needs because of special circumstances. So we are doing kind of an in-house review of those issues and some time this summer we're going to begin a public dialogue to get some more input to face the question of whether or not we need to change that test.

The problem is, there is limited funds and there is high need, and how best to allocate it, so that people feel they were fairly treated.

Mr. **Eckart**. I understand that you have to make some cuts here. The question is, is the test that you use to impose those cuts fair. If you can draw bright lines that people understand, then you eliminate some significant level of controversy, too.

The administration has not requested funding for the implementation of this bill in this current budget that's before us. In fact, I think the President proposed the elimination of the program. How did the administration get to that point and what was EPA's position in the calculations that went into that budget determination?

Ms. **Fisher**. I think, since the beginning of the program, this year included, the administration felt that the funding for asbestos inspections and maintenance plan was largely a State and local matter and needed to be funded by the State and local governments; therefore, the administration has not sought it.

I don't believe—and I would have to check. I know we did not request it as we went through the budget process this year, and I would have to check on the years prior to that. The question is now before us, as we begin to look to the 1992 budget cycle, whether we will seek it or not.

Mr. **Eckart**. I anticipate, in conclusion, Mr. Chairman, that we're going to move this bill, as I said before. Ms. Fisher, I think you know at least how this gentleman proceeds. I just need to know where you're coming from. If you're with me, I want to make sure your interests are well represented, and if you're not, I will advise you that the hearings are being held in rooms other than where we are actually going to meet.

I suspect that the public interest in this bill is sufficient to warrant that the Congress proceed. I certainly would hope, at least as this panel has most recently experienced, that the administration does not find itself in a position of not cooperating with us and then thrusting a last minute veto threat for us over a peculiar provision about which we found little comment during the legislative process and forcing a needless showdown. That is not in your interests and it certainly isn't in ours.

With that, Mr. Chairman, I would yield back the balance of my time.

Mr. **Luken**. I thank the gentleman.

Did you have a response?

Ms. **Fisher**. Yes. First of all, on the technical aspects of the bill, we would like an opportunity to work with you. It is a step, from my perspective, that we have moved the administration from opposing this to not opposing it, running all the risks that ambiguity entails. I felt it was better to be in the position we are now than to be very clear about opposing it.

Mr. **Eckart**. And I'll be happy when you take that next step.

Mr. **Luken**. The division of government that we have, or the separation of powers, is broadening into more and more segments. I'm glad to hear you speaking of the administration in the third person.

But maybe we'll have to have a fourth person.

The gentleman from Maryland is recognized.

Mr. **McMillen**. Thank you, Mr. Chairman.

I was curious, in looking through your testimony, as to your comment on other buildings by schools, particularly Federal buildings. Obviously, some research has been done in this regard. What would be the EPA's position on authorizing funding for similar kind of activities in Federal buildings, a model program, if you will?

Ms. **Fisher**. Congressman McMillen, a couple of years ago the Agency undertook a survey not only of Federal buildings but of public and commercial buildings and submitted a report on asbestos in those buildings to Congress. At that time, in February 1988, we suggested that the Agency would report back to Congress in 3 years, which is this coming February, about how to deal with public and commercial buildings. I would include in that the Federal buildings.

We deferred principally because the schools program, which was the focus of most concern, was just getting up and running. We we worried that we didn't have enough accredited people to do the inspection work or the other contract work involved with the asbestos program and suggested that the Congress and the Agency defer considering expanding the program until we, first of all, had developed a good pool of people to do the work, and second, had an opportunity to evaluate its strengths and weaknesses before we moved into a larger segment of buildings. So I would anticipate later, in about 9 months, the Agency will be coming back up to the Congress with some ideas about what are the next steps, given what we know, to expand the program to other buildings.

Mr. **McMillen**. In your own testimony you indicated the 1988 and 1987 studies, that the data was basically inconclusive and that no major research effort has been undertaken. As you indicated, that's supposed to be sent to the Congress in February, is that right?

Ms. **Fisher**. There's a couple of activities. One is the research effort. The first part of that is a literature review that the Health Effects Institute is doing. We should have that by early next year, early 1991. So that will be available to the Congress as well as to the Agency.

Second, we suggested that EPA, taking this information into account, report back the Congress with some recommendations about how to deal with other buildings.

Mr. **McMillen**. Extending your logic a little bit with regards to the administration's lack of support of funding for this effort because, in their view, it's the province of State and local government, clearly, if Federal buildings are involved here, and if the data that comes back that is conclusive with regard to risk levels and so forth, you might conclude that the administration's argument against funding might not be so relevant; would you agree with that?

Ms. **Fisher**. Well, if we decide that we need to undertake inspection and management plans in Federal buildings, it would make sense that they be paid for by the Federal Government. I think GSA actually does have some work underway on asbestos that is being paid for by the Federal Government. I can provide what they're doing and in what buildings, if you would like.

Mr. **McMillen**. That would be helpful. As someone who represents a lot of Federal workers, obviously I have a deep and abiding concern about the safety of those workers and look forward to getting some conclusive data. But hopefully, as that conclusive data comes back, if it indicates a certain risk, the administration would step forward and do something about it.

Ms. Fisher. Let us look into what programs GSA has underway already. I don't think they have waited for the EPA effort with respect to all buildings. They have moved ahead, I think. I can provide that to you.

Mr. McMillen. Thank you.

[Testimony resumes on p. 104.]

[The following material was supplied:]

DOCUMENTATION PACKAGE
for
ASBESTOS OPERATIONS AND MAINTENANCE PROGRAMS
in
U.S. GENERAL SERVICES ADMINISTRATION FACILITIES

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FOREWORD

The growing concern over low-level asbestos exposures for public building occupants and maintenance staffs has prompted many facility owners and managers to develop and implement comprehensive asbestos-related Operations and Maintenance (O&M) programs in buildings with identified asbestos-containing materials (ACM) in order to alleviate or, if possible, eliminate such concern. The development of these O&M programs, although simple in terms of the ultimate goal, often involves diverse disciplines working together in a coordinated manner, different types and conditions of asbestos-containing material, building conditions which may frequently change, and exact recordkeeping procedures; all of which must be addressed to ensure a successful program.

The U.S. General Services Administration, through its Facility Asbestos Control Managers, the U.S. Environmental Protection Agency, and the Asbestos Program of the Georgia Tech Research Institute, has developed a Documentation Package, designed to facilitate a standardized approach to implementing O&M plans in GSA buildings where ACM has been identified. Through standardized, yet comprehensive, implementation it is the aim of this Documentation Package to provide the means for properly and effectively handling any O&M situations; ultimately helping to ensure protection of human health and the environment.

The objectives of this Documentation Package are fourfold:

- Provide comprehensive recordkeeping forms which can be incorporated into current GSA O&M programs without major modifications to existing programs.
- Provide "user friendly" recordkeeping forms which are more likely to be completed as a part of the O&M program, hence helping to ensure better O&M practices.
- Allow the GSA Facility Asbestos Control Manager (FACM) greater control over all aspects of the O&M program by establishing a chain-of-command through which all forms come to the FACM.
- Incorporate all the essential elements of the O&M program into a practical, workable program to provide for effective asbestos control in GSA facilities.

The recordkeeping forms included in this Documentation Package were developed on the basis of applicable asbestos regulations of the U.S. Environmental Protection Agency and Occupational Safety and Health Administration, the General Services Administration's Handbook, Safety and Environmental Management Program, PBS P 5900.2C, chapter 4, current GSA O&M programs, and a U.S. EPA report "GSA/EPA Pilot Asbestos Program." Revisions made to the draft forms of this document were based on comments received form GSA Assistant Regional Administrators, Public Buildings Service. The helpful comments received served to streamline the Package, and to incorporate more practical, in-field information.

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Building Inspection Report

The primary focus of the building inspection process is to identify the materials within a building which do or are likely to contain asbestos. Asbestos-containing materials can be classified in three categories: (1) surfacing materials which include material on walls, ceilings and structural members, (2) thermal system insulation which encompasses tank, boiler, pipe, and vessel insulation used for temperature or condensation control, and (3) miscellaneous materials which include primarily floor and ceiling tiles.

The Facility Asbestos Control Manager (FACM) or a designated alternate should become familiar with the inspection report and the important terms used within it. One of the more important terms is "homogeneous areas," defined as areas within a building which are uniform in color, texture, construction/application date, and general appearance. Another important term is "functional space" which can be defined as an area in which a particular activity takes place, or which is used for a specified purpose. For example, an auditorium is a particular functional space. The FACM should be aware that a functional space can include more than one homogeneous area, and a homogeneous area can be found in more than one functional space.

Each building inspection report should include:

- The location and description of all known or suspected asbestos-containing materials.
- The delineation of all functional spaces and homogeneous areas.
- An assessment of the condition of all known or suspected asbestos-containing materials.
- An evaluation of the potential for future disturbance or damage to known or suspected asbestos-containing materials.

The assessment criteria for asbestos-containing material will be important in determining what sort of action may need to be taken to protect human health and the environment. For surfacing and miscellaneous asbestos-containing material EPA defines major or significantly damaged material as having one or more of the following characteristics:

- The surface crumbling or blistering over at least one tenth of the surface if the damage is evenly distributed (one quarter if the damage is localized).
- One tenth (one quarter, if localized) of the material hanging from the surface, deteriorated, or showing adhesive failure.

- Water stains, gouges or mars over at least one tenth of the surface if the damage is evenly distributed (one quarter if the damage is localized).

Damaged surfacing or miscellaneous material has been defined by EPA as material with a surface crumbled, blistered, water-stained, gouged, marred or otherwise abraded over less than one tenth of the surface if the damage is evenly distributed (one quarter if the damage is localized).

Surfacing or miscellaneous material assessed as being in good condition is material with no visible damage or deterioration, or showing only very limited damage or deterioration.

The criteria for assessing the condition of thermal system insulation (TSI) is similar to that of surfacing and miscellaneous materials. Major or significantly damaged TSI is material with missing jackets on at least one tenth of the piping or equipment and/or has crushed or heavily gouged or punctured insulation on at least one tenth of pipes, runs/risers, boiler, tanks, ducts, etc., if the damage is evenly distributed (one quarter if the damage is localized).

Damaged TSI is defined by EPA as material with a few water stains or less than one tenth of missing insulation jacketing, and/or crushed insulation or water stains, gouges, punctures, or mars on up to one tenth of the insulation if the damage is evenly distributed (or up to one quarter if the damage is localized). TSI in good condition is material with no visible damage or deterioration, or showing only very limited damage or deterioration.

A copy of the building inspection report should be included in the asbestos files for the building. By having the inspection record available for quick reference, the FACM will be able to more effectively implement an asbestos operations and maintenance program.

Suggested Frequency of Air Monitoring and Inspection

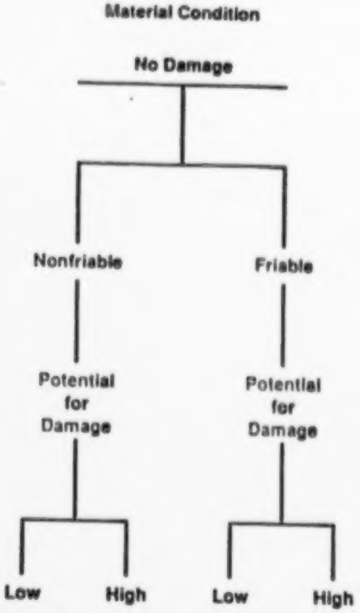
This form is designed to provide the Facility Asbestos Control Manager (FACM) with guidance for air monitoring and inspections of surfacing asbestos-containing materials (ACM) by suggesting a minimum frequency for these operations. This suggested frequency will depend primarily on the condition of the material (whether undamaged or damaged), and the potential for damage. It is important to note that these are suggested minimums, and that these are guidelines established by and for professionals. Local conditions may lead to increases in these frequencies.

Several important considerations should be noted here in regard to the use of this form. Undamaged material can be categorized as either nonfriable or friable, and damage potential is addressed for each. A workable definition for undamaged ACM is simply material with no visible damage or deterioration. For material which shows damage or major damage, the material is assumed to be friable, regardless of its original state. Damaged ACM has been defined by the U.S. EPA as material which has deteriorated or sustained physical injury resulting in weakened internal structure or cohesion of the material, or which has delaminated to such a condition that its bond to a substrate is inadequate. Major damage has been defined to be severely or extensively damaged ACM. Although these definitions may be somewhat subjective, it is important that they be applied as consistently as possible.

Another consideration in establishing frequencies for air monitoring and inspection is the potential for damage. Conditions which might indicate a low potential for damage are if the ACM is in an area where routine activities could but are unlikely to disturb the ACM, or if there are indications that the material could become damaged by changes in building use, changes in operations and maintenance practices, or changes in occupancy. A higher potential for damage could be indicated by ACM being in an area where routine activities are more likely to disturb the material, or where the ACM is subjected to factors such as accessibility, vibration, air erosion, etc.

Because of the usually infrequent nature of air sampling, many situations in which asbestos fibers are emitted may never be detected. As a result, air monitoring should never be used in place of physical and visual inspection in the determination of asbestos management or abatement decisions. However, when used in conjunction with frequent inspections of ACM, air monitoring and bulk sampling combined may provide a better working tool for ACM assessment than either alone. As mentioned above, local conditions may dictate air monitoring and inspection frequencies, but it is essential that a consistent pattern be developed and utilized.

Suggested minimum frequency of air monitoring and inspection from conditions of sprayed-on or troweled-on undamaged surfacing ACM


Material Condition
No Damage
Nonfriable
Friable
Potential for Damage
Potential for Damage
Low
High
Low
High

	Low	High	Low	High
Air Monitoring	A	A	A	A
Inspection	A	S	S	Q

A = Annually
S = Semiannually
Q = Quarterly

Note: Immediate abatement shall be performed, using emergency procurement methods if necessary, when asbestos-containing materials which are damaged or subject to damage are encountered.

Initial Assessment Form for Asbestos-Containing Materials

This series of forms will be used for the initial assessment of the condition of surfacing, thermal system insulation, and miscellaneous materials which have been identified as asbestos-containing. A physical assessment of the asbestos-containing material (ACM) consists of evaluating the condition of the identified or suspected material, as well as evaluating the potential for future disturbance. From this physical assessment, the Facility Asbestos Control Manager (FACM) along with other individuals trained in asbestos work will be able to make a hazard assessment of the ACM, indicating the overall hazard potential for building occupants.

Assessment should be made by qualified and trained safety and health professionals who are familiar with building construction systems and asbestos hazards. From this initial assessment, the FACM can evaluate his/her options and institute the appropriate response actions. One of the following assessment forms should be completed for each homogeneous area within the building. Because these are detailed and extensive forms, they will only be used for the initial assessment of ACM. Subsequent reassessments should be recorded on Asbestos-Containing Material Reinspection Forms which follow the initial assessment forms.

The assessment process itself will begin with a thorough review of the building's initial inspection report in order for the assessor to become familiar with the types and locations of ACM. For each form, the building name and address, GSA building number, area, and date of assessment should be recorded. For each category of ACM, the descriptive type of material should be indicated as well as the total amount of that category of ACM in the area. In addition, the amount of damaged ACM should be indicated.

The condition of the ACM at the time of assessment should be indicated by degree of physical damage or deterioration, water damage or deterioration,and friability. Additionally, the potential for future damage, disturbance, or erosion should be recorded based on factors of accessibility, activity within the area, possible changes in building use, vibration within the area, or location within an air plenum. These assessment factors are used to evaluate any changes found during reassessment, and it is important to stay consistent.

A beneficial element of an assessor's equipment list would be a camera or videotape recorder. The use of such equipment would provide a visual record of the condition of the material, and will provide a more detailed accounting of material condition. By comparing visual and written records, the FACM may be able to more accurately determine any changes the ACM may undergo.

The assessor should sign and date the form upon completion, and the FACM should sign the form indicating he/she has been notified of the results of the assessment.

Surfacing Asbestos-Containing Material
Assessment Form

Building:____________________ GSA Bldg. No.:____________________

Address:____

Area:____________________ Date of Assessment:____________________

Location of Surfacing ACM: ____ Ceiling ____ Wall ____ Other (specify)____________________

Homogeneous Area No.:__________ Functional Space No.:__________

(Note: A separate assessment form will be completed for each type of surfacing ACM.)

Type of Surfacing ACM:
____ Fireproofing ____ Thermal Insulation
____ Acoustical Plaster ____ Decoration
____ Other (specify)____________________

Type of Ceiling:
(if applicable)
____ Concrete ____ 3-coat Plaster Ceiling
____ Suspended Metal Lath ____ Concrete Joists/Beams
____ Tile ____ Suspended Lay-in Panels
____ Metal Deck ____ Corrugated Steel
____ Steel Beam or Bar Joists ____ Other (specify)__________

Ceiling Shape:
(if applicable)
____ Flat ____ Dome ____ Folded Plate
____ Barrel ____ Other (specify)____________________

Type of Coated Wall:
(if applicable)
____ Smooth Concrete ____ Thermal Insulation
____ Masonry ____ Wall or Ceiling Board
____ Other (specify)____________________

Total Amount of Material:__________________ Ceiling Height:__________________

Estimated Thickness:__________________ Is Thickness Uniform: __ Yes __ No
If no, give range of thickness:__________________

Asbestos Known?_____ Type:______________ Percentage:____ Asbestos Assumed?____

Amount of Damaged Material:____

Surfacing Assessment Form
Page Two

Description of Coating: _____ Fibrous _____ Granular/Cementitious

_____ Concrete-Like

Coating Debris on Floor/Furniture/Work Surfaces: _____ Yes _____ No

Is coating subject to disturbance by curtains, expandable partitions, etc. _____ Yes _____ No

Type of Lighting: _____ Surface Mounted _____ Suspended _____ Recessed

Type of Heating/Cooling System:______________________________

What is above the room being evaluated:______________________________

Current Condition of ACM:

Physical Damage/Deterioration: _____ Major _____ Minor _____ None

Water Damage/Deterioration: _____ Major _____ Minor _____ None

Potential for Future Damage, Disturbance, or Erosion:

Accessibility: _____ High _____ Moderate _____ Low

Activity & Movement: _____ High _____ Moderate _____ Low

Change in Building Use: _____ Scheduled_____ Possible _____ None

Vibration: _____ High _____ Moderate _____ Low

Air Plenum: _____ Yes _____ No

Friability: _____ High _____ Low

Amount of ACM Exposed: ____________ Greater Than 10%

____________ 10% or Less

____________ Not Exposed

Comments:______________________________

____

Assessor:____________________ Date Report Completed:____________________

Signed:____________________ Date:____________________
(Facility Asbestos Control Manager)

Thermal System Insulation (TSI)
Assessment Form

Building:____________________ GSA Bldg. No.:____________________

Address:____

Area:____________________ Date of Assessment:____________________

Homogeneous Area No.:____________________ Functional Space No.:____________________
(Note. A separate assessment form will be completed for each type of TSI ACM.)

Type of Pipe and Boiler Insulation (ACM):

Duct Insulation ______ Duct Wrapping ______ Transite Board ____
Boiler Lagging ______ Tank Insulation ______ Elbow Joints (No.): ____
Pipe Insulation ______ Water Pipe ______ Steam Pipe
Area Around ______ Valves ______ Flanges ______ Other ____________ ____________________

Total Amount ACM __________ Linear Feet __________ Square Feet __________
Area of Damaged ACM __________ Linear Feet __________ Square Feet __________
Asbestos Known? ______ Type ____________ Percentage ____ Asbestos Assumed? ______

Location Specifics ______ Air Handler Room ______ Boiler Room
______ Mechanical Room ______ Air Plenum
______ Enclosed Space ______ Stairwell
______ Garage ______ Peripheral HVAC
______ Other (specify)____

Condition of ACM:
Physical Damage/Deterioration ______ Major ______ Minor ______ None
Water Damage/Deterioration ______ Major ______ Minor ______ None
Friability of Damaged Area ______ High ______ Low

Potential for Future Damage, Disturbance, or Erosion
Accessibility ______ High ______ Moderate ______ Low
Activity & Movement ______ High ______ Moderate ______ Low
Change in Building Use ______ Scheduled ______ Possible ______ None
Vibration ______ High ______ Moderate ______ Low
Air Plenum ______ Yes ______ No

Comments:____
____

Assessor:____________________ Date Report Completed:____________________

Signed:____________________ Date:____________________
(Facility Asbestos Control Manager)

Miscellaneous Asbestos-Containing Material Assessment Form

Building:____________________ GSA Bldg. No.:____________________

Address:____

Area:____________________ Date of Assessment:____________________

Homogeneous Area No.:____________________ Functional Space No.:____________________

(Note: A separate assessment form will be completed for each type of miscellaneous ACM)

Type of Miscellaneous ACM: ______ Floor Tile ______ Ceiling Tile
(Attached separate sheets
if more than one type.) ______ Mastic ______ Roofing Felt
______ Extension Panels ______ Shingles
______ Clapboard ______ Millboard
______ Asbestos/Cement Piping ______ Wallcovering
______ Sheet Goods ______ Other____________________
______ Paints & Coatings ____________________

Total Amount ACM: __________ Linear Feet __________ Square Feet __________

Area of Damaged ACM: __________ Linear Feet __________ Square Feet __________

Asbestos Known? ______ Type:__________ Percentage:______ Asbestos Assumed?______

Location: ______ Office ______ Mechanical Area ______ Lobby
______ Conference Room ______ Hallway ______ Cafeteria
______ Garage ______ Roof
______ Other (specify)____________________

Condition of ACM:
Physical Damage/Deterioration ______ Major ______ Minor ______ None
Water Damage/Deterioration ______ Major ______ Minor ______ None
Friability of Damaged Area ______ High ______ Low

Potential for Future Damage, Disturbance, or Erosion:
Accessibility ______ High ______ Moderate ______ Low
Activity & Movement ______ High ______ Moderate ______ Low
Change in Building Use ______ Scheduled ______ Possible ______ None
Vibration ______ High ______ Moderate ______ Low
Air Plenum ______ Yes ______ No

Comments:____
____

Assessor:____________________ Date Report Completed:____________________

Signed:____________________ Date:____________________
(Facility Asbestos Control Manager)

Asbestos-Containing Material Reinspection Form

As part of the Operations and Maintenance (O&M) program, periodic reinspection of all known or suspected asbestos-containing material (ACM) should be conducted. The main objectives of reinspection are to identify areas where O&M programs may need to be strengthened, and to determine areas where alternate control or response actions are necessary. Another use of reinspection is in the design of construction (renovation or demolition) projects which may affect ACM, in order to determine what asbestos controls, if any, are required in the work.

The building name and address, GSA building number, and area being inspected should all be recorded. The date of reinspection, date of original inspection, and the date of last inspection (if different from original inspection) should be indicated. In order to assist anyone who may be unfamiliar with the ACM located within a particular area, some general background information such as type of ACM, a brief description of some of the physical characteristics of the ACM, and the approximate amount of material should be indicated.

The reinspection process itself will look for changes in material condition, with the presence of ACM debris on floors, surfaces, etc. as an indicator of this change. In addition, key factors which may influence a change in ACM condition and which should always be evaluated during any inspection include: changes in physical damage, resulting from maintenance activity or vandalism; water damage from roof or pipe leaks; changes in surface area exposed possibly through missing or broken ceiling tiles or deteriorated pipe lagging; changes in accessibility resulting, possibly, from additions of equipment which may bring someone close to the ACM; changes in activity in the area; change in building or area use such as converting a former storage area into a small office; a change in friability which may result from changes in any of the preceding conditions, or any change in vibration in the area, for example, through the addition of larger operating equipment.

An important item in the reinspection will be the determination, if possible, of the extent of damage or change affecting the ACM. By providing an ongoing tally of area or percentage of affected ACM, the inspector and Facility Asbestos Control Manager (FACM) can evaluate an O&M program's effectiveness or ineffectiveness.

In the event extensive new damage or deterioration of ACM is discovered, remedial action should be taken following the Criteria for Corrective Action Plans, as well as other GSA, EPA, and OSHA requirements and guidance. In such a situation, the FACM or inspector may wish to conduct an inspection of the material using an initial inspection form which provides more detailed information about the material's condition and potential for damage.

During the design of construction projects which may affect ACM, the building inspection summary, mechanical and architectural drawings, and other asbestos-related data are examined. Affected sites are reinspected to evaluate known ACM, determine whether suspect materials which have not been sampled contain asbestos, and obtain accurate and precise estimates of the amounts, types, conditions and locations of ACM which will be affected by the work. As a result, accurate project specifications, drawings and schedules can be developed.

The form should be signed by the inspector, the next scheduled reinspection should be stated, and the FACM should also sign and date the form.

ASBESTOS-CONTAINING MATERIAL REINSPECTION FORM

Building:____________________ GSA Bldg. No.:____________________

Address:____

Area:____________________ Date of Reinspection:____________________

Homogeneous Area No.:____________________ Functional Space No.:____________________

Date of Original Assessment:____________________ Date of Last Reinspection:____________________

Category of Asbestos-Containing Material: ______ Surfacing ______ Thermal System Insulation

______ Miscellaneous

Description of ACM ____

____

Amount of Material ____________________

Any Change in Material Condition? ______ Yes ______ No Describe:____________________

____

Asbestos Known?______ Type:____________________ Percentage:__________ Asbestos Assumed?__________

Any ACM Debris on Floors/ Surfaces/Etc.? ______ Yes ______ No

Since the Last Assessment/Reassessment, Has There Been Any Change In:

Physical Damage ______ Yes ______ No Describe:____________________

Water Damage ______ Yes ______ No Describe:____________________

Exposed Surface Area ______ Yes ______ No Describe:____________________

Accessibility to ACM ______ Yes ______ No Describe:____________________

Activity in Area ______ Yes ______ No Describe:____________________

Building/Area Use ______ Yes ______ No Describe:____________________

Friability ______ Yes ______ No Describe:____________________

Vibration in Area ______ Yes ______ No Describe:____________________

Approximate Amount of ACM Showing A Change In Condition (i.e., area or percentage):____________________

____

____

Reinspection Conducted By:____________________ Date:____________________

Inspector's Company/Organization:____________________ Phone:____________________

Next Scheduled Reinspection:____________________

Signed:____________________ Date:____________________
(Facility Asbestos Control Manager)

Data Form for Bulk Samples

This form will be used to record all bulk samples collected from a particular area either initially during an inspection to determine the presence of asbestos-containing material (ACM), or any time suspect material is found and a bulk sample is collected. Each building should receive its own data form, and sample location should be given in detail. A functional space is a distinct area within a building which can be identified by a distinct building occupant population (ladies room, for example) or activity (conference room, for example). A homogeneous area is an area in which the asbestos-containing material appears similar in terms of material color, texture, and date of application. When collecting bulk samples, it is important to keep in mind that homogeneous materials may make up more than one functional space. Additionally, by identifying homogeneous areas which may run throughout a building (i.e., chilled water supply lines, surfacing material) it may be possible to better track and control material within the facility. A unique sample number should be used for each sample collected, possibly including a unique letter which designates and identifies that particular area.

To augment recordkeeping, as well as for future reference, a diagram or floor plan should be used to indicate where bulk samples have been collected. The sampling area diagram should include an identification number of the homogeneous area or functional space, a brief description of the sampling area, area dimensions, the name and telephone number of the FACM, the name of the inspector, and the date of the inspection. The floor plans should show the areas or materials for which the presence of asbestos is assumed (areas with materials homogeneous with materials sampled or known through observation to contain asbestos), in addition to the areas or materials specifically known to contain asbestos. By keeping these additional records, time and effort may be saved if questions arise over the extent of asbestos-containing material and some retracing of steps becomes necessary.

Type of material will include surfacing, thermal system insulation, and miscellaneous material. Any unusual qualities to the material should be noted on the form (i.e., condition, color, texture, etc.). Asbestos type and percent can only be recorded after laboratory analysis, and it is important that the Facility Asbestos Control Manager (FACM) complete these sections after receiving the laboratory report.

This log should be updated following the collection of additional samples, if they are necessary. Because this log will be beneficial in determining control actions, it should be readily available for outside asbestos contractors to use.

DATA FORM FOR BULK SAMPLE

Building: ____________________
Address: ____________________
Bldg. No.: ____________________

Inspector: ____________________
Signature: ____________________
Date: ____________________

Sample Location					Sample No.	Type of Material	Description of Sample	Asbestos	
Functional Space No.	Homogeneous Area No.	Floor	Room	Location in Room				Type	%

Data Form for Air Samples

This form can be used to log and track any type of air sample collected during an operations and maintenance activity, such as pipe repair, electrical installation, or a fiber episode cleanup.

The building name and address, and GSA building number should be recorded for each form. The table itself is divided to facilitate easy data entry and review. Each sample collected should be given a unique number, and the date the sample was collected and the location should be recorded. An indication as to the type of sample, whether personal, area (collected in or around the workspace) or some other type of sample such as clearance samples, should be indicated. If a personal sample is collected, whether the sample is an 8-hour time weighted average (TWA) or a 30-minute TWA excursion limit sample should be indicated. Any personal sample collected should include as part of the data form the name, social security number and company or organization of the individual.

It is important that a detailed description of the activity being sampled be included. This may aid the Facility Asbestos Control Manager (FACM) in determining if proper work practices are being used, and whether any operations and maintenance (O&M) activity conducted in-house may be more suitable for outside contractors. When the air monitoring is being performed in response to a fiber release episode, a Fiber Release Episode Report, as well as this air sampling data form, should be completed.

Pertinent sampling information such as start and stop times for the sampling period, and pump flow rate should be recorded to help insure consistency in sampling. The method of analysis should be indicated (whether NIOSH 7400, OSHA Reference Method, transmission electron microscopy, or other method) and the fiber concentration should be reported also. Additional comments can include the type of respiratory protection worn by individuals, or any unusual circumstances which could affect the sampling results.

Finally, the sampling technician should sign and date the form, and provide his/her company or organization name.

DATA FORM FOR AIR SAMPLES

Building: ______________________ GSA Building No.: ______________________

Address: ____

Sample Number	Date	Location	Type of Sample			Activity Being Sampled	Name, Social Security Number and Organization of Individual Monitored	Sampling Information						
			Personal		Area I(nside) O(utside) C(leanroom)			Start Time	Stop Time	Mins.	Flow Rate l/min.	Vol.	Method of Analysis	Fiber Concent.
			8-Hr. TWA	Excur.										

Additional Comments: ____

____

Sampling Technician: ______________________ Date: ______________

Signature: ______________________

Technician's Firm: ______________________

Building Inspection Summary Sheet

The Building Inspection Summary Sheet will serve as a quick reference source when determining the characteristics of asbestos-containing material (ACM) within a particular area. The sheet is organized by building area rather than homogeneous area or functional space, since most of the ACM locations will be referred to by area. Both homogeneous area and functional space will be recorded on the form for cross-reference purposes.

Other information included on the summary sheet is designed to provide a synopsis of the ACM and its condition. The material is classified by category, type and percent asbestos, amount of ACM and whether or not it is friable, and finally by important assessment criteria.

This summary sheet is not intended to replace the information collected for the original inspection report. However, the Facility Asbestos Control Manager (FACM) and other personnel may be able to use this sheet to maintain tighter control over Operations and Maintenance (O&M) activities, help in the decision to accept work control applications, and provide information helpful for planning reinspections.

This form can be completed either by the building inspector as part of his/her inspection duties, or by the FACM or building staff following the submission of inspection report data.

Building: ______________________ GSA Bldg.No.: ______________________

Address: ______________________ Date of Inspection: ______________________

Area: ____

Homogeneous Area No.: __________ Functional Space No. __________

Category of ACM: _____ Surfacing _____ Thermal System Insulation _____ Miscellaneous

Type of Asbestos: _____ Chrysotile _____ Amosite _____ Other _____

Percent Asbestos: ____________

Amount of ACM: ____________

Friable: _____ Yes _____ No

Material Assessment: _____ No Damage _____ Damaged _____ Other ____________

Reason for Damage: ____

Area: ____

Homogeneous Area No.: __________ Functional Space No. __________

Category of ACM: _____ Surfacing _____ Thermal System Insulation _____ Miscellaneous

Type of Asbestos: _____ Chrysotile _____ Amosite _____ Other _____

Percent Asbestos: ____________

Amount of ACM: ____________

Friable: _____ Yes _____ No

Material Assessment: _____ No Damage _____ Damaged _____ Other ____________

Reason for Damage: ____

Area: ____

Homogeneous Area No.: __________ Functional Space No. __________

Category of ACM: _____ Surfacing _____ Thermal System Insulation _____ Miscellaneous

Type of Asbestos: _____ Chrysotile _____ Amosite _____ Other _____

Percent Asbestos: ____________

Amount of ACM: ____________

Friable: _____ Yes _____ No

Material Assessment: _____ No Damage _____ Damaged _____ Other ____________

Reason for Damage: ____

II

Release of Information

Tenant/Employee/Building Occupant Notification Form

A key to insuring successful management of a building's asbestos-containing material is communication among building occupants, tenants, and employees. All should be kept informed of asbestos-related activities which may affect them.

Tenant agencies should be notified of the presence of asbestos-containing materials, the implementation of an Operations and Maintenance (O&M) program, the carrying-out of various aspects of the O&M program, and any plans for abatement. The Facility Asbestos Control Manager (FACM) is responsible for ensuring that tenant agencies are notified, through their liaisons (such as their safety officers or local office heads), of asbestos conditions, air monitoring results, and abatement or alterations in their space. The tenant agencies are then responsible for notifying their employees or union representatives of this information. The date of notification should be recorded on this form, as well as the method of notification. This notification may take the form of a letter, posted notice, newsletter, public meeting, awareness seminar, or possibly a combination of these, as appropriate. The method of notification will depend on the effectiveness of previous forms of communication, the condition or seriousness of an operation, and may vary among facilities.

Two important criteria for notification are: (1) what to include in any notification, and (2) who will notify the tenants or occupants. Any educational effort undertaken to notify affected personnel should include:

- asbestos is present in the building
- the type and location of asbestos-containing materials (ACM)
- the potential health effects associated with asbestos exposure in buildings
- plans to deal with the situation
- instructions to avoid disturbing the ACM (e.g., do not hang plants, do not remove or lift ceiling tile)
- procedures to report any disturbances or damage to ACM
- additional sources of information.

The possibility exists that not all aspects of the O&M program will run continuously without problems, and the FACM must be ready to deal with a situation in which mistakes occur and building occupants become angry. In such instances it may be prudent to obtain the services of a qualified professional, such as an asbestos consultant, safety manager, qualified industrial hygienist, etc., to conduct awareness seminars or immediately address concerns when something unexpected occurs, in order to take effective action and reduce possible fears among building occupants.

In some instances, the determination of what not to include in notifications may be equally as important as what is included. False or misleading statements must be avoided in all forms of information dissemination. Wording which may be interpreted by an audience as reflecting an uncaring attitude or which may seem ambiguous or not completely forthright should also be avoided. The FACM in consultation with asbestos technical professionals will need to evaluate on a case-by-case basis whether any information released may be more harmful to building public relations.

Credibility is what the FACM is seeking in a public relations effort. Information flow should begin before the inspection process to establish credibility and be reinforced by timely updates as further information becomes available for distribution. Presenting the logic and rationale ahead of any decision point may encourage cooperation.

Attached is a sample informational letter to tenants and building occupants.

TENANT/EMPLOYEE/BUILDING OCCUPANT NOTIFICATION FORM

Building:____________________ GSA Building No.:____________________

Address:____

TENANT AGENCIES

________ No tenant agencies in this facility

Tenant agencies notified of:

________ presence of asbestos-containing materials Date:____________________

________ implementation of O&M program Date:____________________

________ ACM abatement plans Date:____________________

________ air monitoring results Date:____________________

Attach list of tenant agencies notified.
Attach documentation that tenant agency received notification (optional).

EMPLOYEES/OCCUPANTS

Notification of all facility employees of ________ presence of ACM

________ implementation of O&M program

________ ACM abatement plans

________ air monitoring results

Type of notification (check all that apply and list dates)

________ Letter Date:____________________

________ Posted notices Date:____________________

________ Newsletter Date:____________________

________ Public meeting Date:____________________

________ Awareness seminar Date:____________________

GSA NOTIFICATIONS

________ Notification to GSA Regional office, Mail Code ____________________

________ Notification to GSA Field Office, Mail Code ____________________

Sent by: ____________________

Office: ____________________

Phone: ____________________

Date: ____________________

Sample Informational Letter to Tenants/Occupants

General Services Administration
George Washington Federal Building
100 Main Street
Washington, DC 20000

MEMORANDUM FOR Building Tenant Agencies/Occupants

FROM: Charles Smith
Facility Asbestos Control Manager

SUBJECT: Notification of the Presence of Asbestos-Containing Material Within the George Washington Federal Building (GSA# DC1234ZZ)

As communicated to building tenant agencies and occupants in a memorandum dated June 12, 1989, during scheduled renovation of the second floor cafeteria within the George Washington Federal Building, asbestos-containing material was identified in spray-applied fireproofing on the ceiling deck. After extensive discussion with the GSA Regional Office, as well as reputable experts in the field of asbestos detection and control, the entire facility was inspected for the presence of asbestos-containing materials. Results of this initial building inspection have indicated the presence of asbestos-containing materials in several areas throughout the building.

Upon receipt of these results, consultation was entered into with experts in the field of asbestos detection and control to develop a course of action specifically designed to protect the health and safety of building occupants. Among the experts assembled to serve on an Asbestos Advisory Task Force are Dr. L. Johnson, Chief of Pulmonary Service for General Hospital; Mr. I. Thomas, Esq., of the firm Thomas and Thomas, P.C.; GSA attorneys; and Ms. D. Stolz, an experienced asbestos and air quality analyst with Better Environment, Inc. These individuals will provide a knowledgeable and experienced panel to answer any questions you might have.

Upon the recommendation of the Asbestos Advisory Task Force and in keeping with proven industry standards, an asbestos-related Operations and Maintenance (O&M) program was immediately established to provide an effective means for dealing with the asbestos situation. The objectives of the O&M plan are to:

- establish a program of work practices to maintain asbestos-containing materials in good condition
- ensure the safe clean-up of asbestos fibers previously released
- prevent release of asbestos fibers by minimizing disturbance and damage
- develop an in-house asbestos response team to effectively handle emergency situations.

Sample Informational Letter to Tenants/Occupants (continued)

Through the establishment of a trained, in-house asbestos response team and use of experienced outside asbestos abatement contractors, the asbestos situation within this facility can be controlled in a manner which will be safe to the health of the building occupants. Of course, the help and cooperation of all tenant agencies and occupants will be needed.

In addition to the establishment of the Asbestos Advisory Task Force and the in-house asbestos response team, this office will implement a policy of providing informational updates on any activity which will involve the intentional disturbance of asbestos-containing material during building operations, emergency response to asbestos fiber releases, and precautions and procedures designed to ensure the health and safety of the building occupants. In addition, information can be gained directly by contacting this office at X-0012.

In order to answer any questions our building occupants may have and to help alleviate the fears associated with asbestos discovery, an open meeting has been scheduled for 2:30 p.m. on Tuesday, August 26 in the Auditorium of this building. Members of the Asbestos Advisory Task Force will be present to provide further information and answer questions about your concerns. We strongly urge all building occupants to attend. It is believed that only by keeping the lines of communication open between all parties can we effectively and safely deal with our asbestos situation.

Records Request Form

This form is designed to track the outflow of Operations and Maintenance (O&M) program records to authorized building occupants or tenants. Through a structured and formalized request procedure the Facility Asbestos Control Manager (FACM) will be better able to track the amount and type of material and information that is available to the building population. By being able to provide pertinent information, the FACM will be helping to ensure proper notification of building occupants, with the assurance of reliable and accurate information.

Persons or tenants requesting records should state specifically the document or documents wanted and provide a justifiable reason for the request. The request itself will be logged, and after reviewing the request a determination will be made to grant or deny. The FACM, who will be responsible for all aspects of his/her building's O&M program, should indicate final approval of the request. The date of records delivery should also be documented in order to minimize the possibility of losing records in transfer.

All GSA asbestos-related records (except duplicates and certain other excluded items) must be retained permanently with an Asbestos Records Label on all file folders and record boxes. The FACM must not permit any records to be lost when building occupants or tenants request them. Usually this can be ensured by allowing the requestors to view the records in the GSA office, or by making photocopies which can be borrowed or given to the requestors.

RECORDS REQUEST FORM

Building: ____________________ **GSA Building No.:** ____________

Address: ____

Requesting Agency: ________________________________

Contact Person: ______ ____________ **Date Requested:** ____________

Room/Building: ____________________ **Phone:** ____________

Records Requested:

Area or Subject: ________________________________

Contract Number: ________________________________

Description of Records: ________________________________

____

Reason for Request: ________________________________

____

Request Received By: ____________ **Date:** ____________

Request Granted By: ____________ **Date:** ____________

Request Denied By: ____________ **Date:** ____________

Reason: ________________________________

____

Facility Asbestos Control Manager Approval: ____________________

(Signature)

Date: ____________________

Date Records Sent: ____________________

III

The Operations and Maintenance Program

Operations and Maintenance Program Activity

An asbestos-related Operations and Maintenance (O&M) program must be developed and implemented as soon as possible following the identification of asbestos-containing material (ACM) within a facility, and will remain in effect until all asbestos-containing material is removed from the building. When implementing an O&M program it is important to become familiar with its objectives: clean-up of previously released asbestos fibers, preventing future release by minimizing disturbance, conducting periodic reinspections and recleaning of areas where asbestos-containing materials are located, and maintaining existing asbestos-containing material. The asbestos-related O&M program must be integrated into the building's overall O&M program.

In establishing an O&M program and performing any O&M activity, building records, inspection reports, and floor plans should accurately reflect where all identified ACM and all materials assumed to be ACM are located. The initial building survey should have these locations marked. In addition, building occupants should be notified of the presence of asbestos, custodial staff should receive awareness training related to asbestos, and maintenance personnel whose work may involve coming in contact with asbestos must be properly trained in working with the material.

This record of all activity associated with a building's O&M program will be crucial in successfully dealing with a facility's asbestos situation. This form should be completed by the GSA project supervisor and Facility Asbestos Control Manager (FACM) after any O&M activity is performed, and will help maintain complete and current information about particular areas of a building. Because a building may have many areas of ACM as well as have these areas undergo, oftentimes, several different O&M activities, it is important that information be recorded and organized for quick reference, and retained permanently.

In completing this form, building and area identification should be specific, and the date should be recorded as to when the O&M activity took place. The purpose of the O&M activity should be indicated as a minor repair, such as fixing pipe lagging; small scale removal such as having to remove ACM thermal system insulation in order to repair a pipe leak; small scale encapsulation to patch or reinforce an area; abatement of pre-existing ACM debris if this is a newly discovered area undergoing initial cleaning; a fiber release episode due to unplanned disturbance or damage of the material; labelling of ACM or a scheduled periodic recleaning of an area as part of the O&M program. Note: if a special cleaning activity is performed, a "Record of Initial/Periodic Special Cleaning" form should be completed.

The type and approximate amount of material involved in any O&M activity should be noted to provide the FACM with accurate accountings of ACM in any given area. The reason for conducting an O&M activity should be indicated, and could indicate a common pattern for a cause of continuous O&M activity and help with establishing preventive measures for future releases of asbestos.

Precautions taken during the O&M activity should be recorded, as should work practices and personal protective equipment. Trained personnel designated to perform O&M work should have the necessary background in work practices to effectively isolate the area of concern and restrict access to the area, and should be familiar with a building's mechanical system in order to immediately shut down or modify the air handling system as needed. O&M training should also include thorough presentations on the proper work practices, such as a plan of action which can be followed in a step-by-step manner. For example, how and when enclosures or containment will be constructed, or what type of cleaning method (wet wiping, HEPA-vacuuming, steam cleaning, etc.) would be most applicable for a certain area. A good idea for a FACM to introduce for any area is a worst-case scenario in which a response team can immediately act correctly to prevent the further release of asbestos fibers. The O&M response team should also be familiar with when glovebags can and cannot be used.

A brief but detailed description of the activity conducted should be provided. It is important, also, to record whether the O&M activity is performed in-house or by an outside contractor, names of personnel involved, a record of notification to involved tenants or building occupants, the duration of the work activity, and appropriate references to air monitoring data.

Finally, once the work is completed according to GSA requirements or standards, the GSA project supervisor and FACM should both sign and date the form.

OPERATIONS & MAINTENANCE PROGRAM ACTIVITY

Building ______________ GSA Bldg. No. ______________

Address ______________________________

Area ______________ Dates of Project: ______________

______ ______________ GSA Project/Contract No.: ______________

Purpose of O&M Activity:
______ Minor Repair
______ Small Scale Removal
______ Small Scale Encapsulation
______ Abate Pre-Existing ACM Debris
______ Fiber Release Episode
______ Periodic Cleaning

Type of Material: ______ Surfacing ______ Thermal System Insulation
______ Miscellaneous

Approximate Amount of Material Involved: ______ SF ______ LF

Cause of O&M Activity:
______ Deterioration ______ Vandalism
______ Delamination ______ Maintenance Activity
______ Water Damage ______ Other (Specify)
______ Physical Damage ______________

Precautions Taken:
______ Warning Signs Posted
______ Air Handling System Shut Down; ______ Modified
______ Access to Area Restricted

Work Practices Used:
______ Wet Wiping ______ Glovebags
______ HEPA-Vacuum ______ Other (Specify)
______ Enclosures ______________
______ Steam Cleaning ______________

Protective Equipment Used:
______ Respirators; Type ______________
______ Protective Clothing
______ Other (Specify) ______________

O&M PROGRAM ACTIVITY
PAGE 2 of 2

Was Air Monitoring Conducted? ______ **Yes** ______ **No**
(Attach air sampling log form)

Were Affected Tenant Agencies Notified? ______ **Yes** ______ **No**
(Attach Occupant Notification Form)

Brief Description of Action: ____

____

____

____

Start Date ____________________ **Completion Date** ____________________

Work Conducted: __________ **In-House** __________ **Outside Contractor**

Name of Contractor: ____

Address: ____

____

Contact/Phone: ____

Contractor Personnel Involved: ____

____

____

GSA Project Supervisor: ____

Phone: ____

GSA Personnel Involved: ____

____

____

Work Completed According to GSA Requirements/Standards:

Signed: ______________________________ Date: ____________________
GSA Project Supervisor

Signed: ______________________________ Date: ____________________
Facilities Asbestos Control Manager

Record of Initial/Periodic Special Cleaning

The cleanup of any debris of asbestos-containing material (ACM), as well as necessary periodic recleaning of an area to prevent or minimize the release of asbestos fibers, can be an essential part of a building's operations and maintenance program. Initial special cleaning includes cleanup of visible ACM debris and special cleaning of building areas with ACM prior to any abatement performed in response to asbestos damage. Based on the inspection report, such as when continued accumulation of asbestos debris occurs, periodic special cleaning may be required thereafter. Each special cleaning, whether the activity is initial or periodic, should be recorded on this form, as should the types of items cleaned, and the methods used to clean them. As part of any O&M training program, personnel should be made aware of effective cleaning methods, and the proper application of these methods. A standard operating procedure should be developed for a particular method. For example, carpeting within areas identified as having ACM within them may be cleaned using HEPA-vacuuming and/or steam cleaning whereas wet methods may be best for hard horizontal surfaces within the area.

Two very important parts of completing this form, as well as for keeping on top of an important aspect of the O&M program are (1) whether any visible debris was noticed in the area, and (2) whether any change in ACM condition was noticed since a previous cleaning. The presence of debris will most likely indicate that some change in condition has occurred, yet it is important to keep in mind that material condition may change without releasing noticeable debris. Visual inspection of the ACM itself is important. All changes should be noted and explained further in the comment section.

Upon completion of the special cleaning operation, a note should be made of all personnel involved in the cleaning, and the form should be signed by the GSA activity supervisor and the FACM, and the next scheduled special cleaning, if needed, should be indicated.

Record of Initial/Periodic Special Cleaning

Building ____________________ GSA Building No.: ____________________

Address ____________________ Date:____________________

Area Cleaned ____________________ Initial Cleaning ____________________

____________________ Periodic Recleaning ____________________

Items Cleaned: ______ Carpet ______ Drapes/Curtains

______ Furniture ______ Fixtures

______ Flooring ______ Other

Equipment Used: ______ HEPA-Vacuum

______ Wet-Wiping

______ Steam Cleaning

Any Visible Debris in Area ______ Yes ______ No

Any Change in ACM Condition Since Previous Cleaning __ Yes __ No __ N/A____________________

Extent of Change ____________________

GSA Activity Supervisor ____________________

GSA Personnel Involved ____________________

____

____

____

Name of Contractor ____________________

Address: ____________________

Contact/Phone: ____________________

Contractor Personnel Involved ____________________

Comments ____________________

____

Signed ____________________ Date: ____________________
GSA Activity Supervisor

Next Scheduled Cleaning ____________________

Signed ____________________ Date: ____________________
Facility Asbestos Control Manager

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Fiber Release Episode Report

This form will allow the Facility Asbestos Control Manager (FACM) to track his/her facility's in-house asbestos response team, or an outside contractor's response to any fiber release episode. A fiber release episode is an uncontrolled or unintentional disturbance of asbestos-containing materials (ACM) resulting in visible emissions of asbestos. Information is collected on the building, area within the building, and location where the fiber release episode occurred. The person who discovered and reported the episode and the date of discovery should also be recorded, as well as a description of the episode, including the type of material involved, the approximate amount of material released, possible causes of the release episode, and the clean-up process.

It will be essential to record the response of personnel involved in the release episode. All personnel should be trained to recognize a possible asbestos fiber release episode, and should respond under developed protocol. The Asbestos Hazard Emergency Response Act (AHERA) outlines a certain set of actions which can be helpful in establishing response protocol. Entry to the area should be immediately restricted to only those personnel directly involved in response to the situation. The air handling system within the affected area should be immediately modified or shut down. The released debris should be thoroughly saturated using wet methods to minimize the potential for additional fiber release to the air, and cleaned immediately using HEPA-vacuuming or steam cleaning techniques. If possible, on-site personnel should be used to provide a quick response, but the services of an outside contractor should be available if the situation requires more involved work. The area from which the material was released should be repaired, or an alternative response action should be conducted as necessary. Immediate supervisors and the FACM should be notified of the release and subsequent corrective action.

A record should be kept of the personnel involved in the release clean-up, if only to indicate whether or not in-house or outside contractor personnel were used. By evaluating these response records, better training and/or response procedures can be developed or tailored to a specific situation. If air monitoring is performed during the response to the fiber release episode, a Data Form for Air Samples should be completed. When one or more square or linear feet of ACM is released, or for any episode expected to result in adverse tenant or media reaction, the Office of Real Property Management and Safety in Washington, DC, should be notified within two working days. Additionally, a detailed record of the equipment used, including personal protective equipment, should be noted.

The FACM or a designated alternate should notify the Regional Office of each fiber release episode. A telephone call, first to the Safety and Environmental Management Branch/Division, or if no one can be reached there, the Real Property Management and Safety Division will be the most effective way for relaying information quickly. Information provided to the Regional Office should include the approximate amount of material released and the steps taken to clean up the debris. The FACM or designated alternate may want to follow up this phone call by sending a copy of the Fiber Release Episode Report.

Under Superfund regulations, when more than one pound of friable asbestos is released into the environment, or if there is a threat of such a release, the FACM, or the manager of an asbestos-related construction project, must immediately notify the National Response Center at 800-424-8802 (in Washington, DC, 202-426-2675). GSA, or the contractor, is responsible for removing the asbestos from the environment or taking other appropriate remedial action in response to the actual or threatened release.

Fiber Release Episode Report

Building: ______________________ GSA Building No.: ______________

Address: ____

Area: ______________________ Date: ______________

____

Episode Reported By: ______________________ Date: ______________

(Name, Title) Phone: ______________

Type of Material: ______ Surfacing ______ Miscellaneous

______ Thermal System Insulation

Approximate Amount of Material Released ______________________

Asbestos Type and Content (If Known) ______________________

Cause of Release: __________ Deterioration __________ Physical Damage

__________ Delamination __________ Vandalism

__________ Water Damage __________ Maintenance Activity

Was area sealed off from nonessential personnel? ______ Yes ______ No How ______________

Was air handling system shut down/modified? ______ Shut Down ______ Modified ______ No

Description Of Clean-Up Procedures: ______________________________

____

____

____

Clean-Up Conducted: ______________ Outside Contractor ______________ In-House

Name of Contractor: ______________________ Response Team Leader: ______________

Address: ______________________

Equipment Used: ______ HEPA-Vacuums ______ Respirators

______ Wet-Wiping ______ Protective Clothing

______ Steam Cleaning ______ Other (Specify)

Was Regional Office contacted regarding release? ______ Yes ______ No

Person Contacted: ______________________ Dept.: ______________

Title: ______________________ Phone: ______________

Was follow-up letter/information sent? ______ Yes ______ No Date: ______________

Signed: ______________________ Date: ______________

(Facility Asbestos Control Manager)

Work Control Application for Performing Maintenance/Renovation Work

A potentially serious problem occurs when tenant agencies, outside contractors, or unauthorized personnel perform activities which may disturb asbestos without either them or the Facility Asbestos Control Manager (FACM) knowing. In an attempt to minimize or eliminate such occurrences, all personnel who perform work in an area with identified asbestos-containing material (ACM) should be required to submit a work control application.

The work control application will include the exact location of the area involved in the work. This section should include as much detail as possible, especially if this is an area where more than one type of activity involving different materials may be conducted. Since the possibility or likelihood exists that the maintenance/renovation work will disturb ACM, the appropriate asbestos control method(s) to be used should be indicated. The approximate amount of ACM involved or potentially affected should also be included, indicating the category of material (i.e., surfacing, thermal system insulation, or miscellaneous) and the linear or square footage. The starting and completion dates should be recorded, and these dates should be monitored to determine any unusual changes in work practices resulting in project delays.

It should be noted that for a few cases within GSA-operated facilities, special conditions will exist where national security measures will prevent certain operations from being included in the work control system. Situations such as these will need to be coordinated and dealt with according to GSA and federal government protocol.

Asbestos may be disturbed by renovations, repairs, maintenance or other activities. All personnel involved in the maintenance/renovation work should be identified on this form. If an outside contractor (telephone repair crew, computer cable company, etc.) is to be used, the name, address, phone number, and supervisor contact should be included. Any in-house personnel should also be listed if their work should require a work control application.

The tenant agency(ies) affected by this maintenance/renovation work should also be identified and the contact within each agency included. In the event that an emergency should arise the name and phone number of an emergency contact should be kept readily available.

At the start of the implementation of the work control system, the FACM should ensure that all contractors or tenant agencies performing alterations or maintenance in the building are already aware or are made aware of asbestos conditions which may affect their work, and that appropriate asbestos controls or means of avoiding asbestos disturbance are taken. This process should continue as new contractors or tenant agency crews start to work in the building.

This form need not replace existing regional GSA asbestos control forms, but is intended to supplement them by making smaller-scale maintenance projects easier to plan for and control.

The FACM will need to complete the bottom portion of this form, and based on the information supplied to the FACM and his/her knowledge of the building, a decision will be made on whether to accept or deny the work control request.

Work Control Application for Performing [illegible]

Notes to applicant: (1) Submit this application as soon as work which may involve asbestos is initiated, and attach supporting documents, such as drawings and reimbursable work authorization. Include information known at the time of application, and discuss revisions with the Facility Asbestos Control Manager as the project develops.

(2) Review of the application is based on the asbestos known to GSA; the applicant retains the responsibility for controlling asbestos the applicant encounters and immediately reporting to GSA any unexpected materials suspected of containing asbestos, or unexpected conditions of known asbestos.

Building: G. WASHINGTON FEDERAL BLDG **GSA Building No.:** DC [illegible] XX

Address: 100 MAIN STREET WASHINGTON, DC 20000

Area of Work: THIRD FLOOR COMPUTER ROOM

Dates of Work: Start JAN. 16, 1990 **Completion** Jan 17, 1990

Description of Work Involved: run computer cable above drop ceiling

Asbestos Control Method(s):	Proposed by Applicant	Accepted by Facil. Asb. Control Mgr.
Removal		
Encapsulation		
Enclosure		
Repair		
O&M	✓	✓
Other		

Type (Category) And Approximate Amount of Asbestos-Containing Materials:

Type (fireproofing, pipe lagging, etc.)	fireproofing 25 sf	

Protective equipment (describe):

Personal:	PAPR, clothing	
Work area:		

Contractor/Agency Name: MV CONTRACTORS **Contact:** Joe Reed

Address: ROCKVILLE, MD **Phone:** 681-8480

Review by Facility Asbestos Control Manager:

Accepted by: Charles Smith **Date:** Jan. 10 1990 **Project Number:** [illegible] 02314

Denied by: ______ **Date:** ______ **Reason for Denial:** ______

Record of Abatement Project

This form is designed to provide a quick reference for the Facility Asbestos Control Manager (FACM) to track when and where a particular abatement activity took place. Delineated by building area, this form could serve as a review cover sheet for all abatement activity for that particular location. Although by no means a complete and thorough record of any abatement project in and of itself, when used in conjunction with other forms in this Documentation Package, this form will provide the FACM with the means to track past abatement projects as well as plan for future action.

For each abatement project within a specified area of the facility, one form should be completed. The dates during which the abatement project took place should be indicated. The type of abatement operation (removal, encapsulation, enclosure, repair, or Operations & Maintenance) should be noted, and provisions have been made on the form for inclusion of more than one operation if this is the case. The material being abated should be recorded, along with the approximate amount of material. This can be critical since there may be times when only a portion of a certain material is affected (i.e., for repair or O&M activity). Additionally, changes should be made, as appropriate, to existing floor plans, building records and drawings which reflect each area or system which has been abated. Thorough documentation, including date and project number of asbestos abatement projects, on applicable forms and drawings will assist the FACM in the identification of any remaining asbestos-containing material. It is important that these records can be easily reviewed and interpreted by anyone who may have cause to view such documents. A description of the material, such as damaged, small area affected by pipe leak, etc., should be given to help distinguish between successive abatement projects.

Upon completion of the project, the GSA Project Supervisor or Manager should sign the form, as should the contractor's Project Supervisor. Finally the FACM should sign the form, indicating successful project completion according to GSA standards. This step will help keep the FACM directly involved in the asbestos control program.

To provide maximum benefit in the context of ongoing O&M programs, this form should be included in an area grouping with other actions within that particular location. Additionally, when used in conjunction with the Operations and Maintenance Program Activity Form, Work Control Application for Performing Maintenance/Renovation Work, and the Investigator's Survey Checklist, the Record of Abatement Projects Form will allow for a more accurate assessment of asbestos-related work within a facility.

Building ____________________ **GSA Bldg. No.** __________

Address ______________________________

Area ____________________ **Dates of Project:** __________

____________________ GSA Contract No.: __________

Abatement Operation: __________ **Removal** __________ **Repair**
(Check all that apply) __________ **Encapsulation** __________ **O&M**
__________ **Enclosure**

Amount

Material Abated: __________ Surfacing ACM __________
__________ Thermal System ACM __________
__________ Miscellaneous ACM __________

Description of ACM: ______________________________
____

Have appropriate drawings, floor plans, building records been changed to reflect this abatement project? ___Yes
___No

Documents changed ______________________________

GSA Project Supervisor ______________________________
Title ______________________________
Office ______________________________
Phone ______________________________

Contractor's Project Supervisor ______________________________
Title ______________________________
Company ______________________________
Address ______________________________
Contractor License # ______________________________

Signed ____________________ **Date** __________

Note: **Attach 1 copy of Work Control Application for Performing Maintenance/Renovation Work, and all applicable EPA, OSHA and other notification information.**

IV
Response Action Alternatives

COMPARISON OF ALTERNATIVE RESPONSE ACTIONS

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Long Term Use of Operations and Maintenance Plan	1. May be most appropriate response action until renovation or demolition. 2. Usually lowest initial costs. 3. Good interim plan until funding becomes available for removal. 4. Allows asbestos removal to occur over a period of years, thus spreading expenditure. 5. Can be implemented quickly. 6. Can usually be done in-house.	1. Asbestos source remains. 2. Surveillance (O&M Plan) is required in areas with identified or assumed ACM. 3. Costs of training, increased labor and equipment and asbestos air monitoring surveillance may be significant. 4. Long-term life cycle cost may be greater than that of removal. 5. May not be effective where control of worker/building occupant activities is difficult.
Encapsulation	1. May reduce asbestos fiber release from material. 2. Initial cost typically lower than removal or enclosure, although higher than O&M. 3. Fireproofing or insulating material may not need replacement. 4. Quick, temporary corrective action for damage to insulation material on piping and associated mechanical equipment. 5. Allows opportunity for simultaneous improvement of architectural finishes on surfacing ACM.	1. Asbestos source remains and may have to be removed at a later date. Encapsulation may increase future removal cost. 2. Inappropriate encapsulating agent application may cause asbestos material to delaminate from substrate, or may not prevent fiber release. 3. O&M Plan needs to be kept active; potential for damage may still exist. 4. All the preparation activities for asbestos removal need to be implemented during encapsulation.

COMPARISON OF ALTERNATIVE RESPONSE ACTIONS
(cont.)

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Enclosure	1. Reduces immediate exposure. 2. Initial cost is typically lower than removal, although higher than O&M. 3. Fireproofing and insulation materials would not need replacement. 4. Quick, temporary corrective action for damage to insulation material on piping and associated mechanical equipment.	1. Asbestos source remains and may have to be removed at a later date. Enclosure may increase future removal cost. 2. Maintenance to systems behind enclosure requires the removal of enclosure, thereby exposing ACM and increasing cost. 3. O&M Plan still needed. Potential for damage may still exist. 4. Fibers will likely be released during construction of enclosure (or spray application of encasement) and will, therefore, generally require the same preparation as that of removal and encapsulation. 5. Long-term life cycle cost may be greater than removal.
Removal	1. Eliminates ACM. 2. Eliminates continued need for O&M Plan. 3 Life cycle cost may be lowest of alternatives. 4. Eliminates application of OSHA/EPA asbestos worker protection standards regulation (if all ACM is removed).	1. Replacement material may be needed. 2. Improper removal may increase airborne asbestos fiber concentration above prevalent levels. 3. Initial cost is usually highest of all methods. 4. Some or all building operations may have to be shut down temporarily during removal.

CRITERIA FOR RESPONSE ACTIONS

Considerations: Determine which response action(s) protect human health and the environment; consider local circumstances, e.g., occupancy and use patterns, short- and long-term costs, etc.

Condition	Response Action Alternatives
ACM in good condition	• Implement asbestos-related Operations and Maintenance (O&M) Program. • Institute preventative measures to eliminate the reasonable likelihood that the ACM will become damaged, deteriorated, or delaminated. • Abate materials, if preventive measures cannot be effectively implemented, or if other corrective actions cannot protect human health and environment. Immediately isolate area and restrict access to avoid imminent danger to human health and environment.
Damaged ACM	• Immediately implement O&M program. • Encapsulation. • Enclosure. • Removal. • Repair.

ACM with major damage	• Immediately isolate and restrict access to area to only authorized personnel.
	• Notify proper officials.
	• If ACM debris is loose, air handling system may have to be shut down or modified to prevent fiber migration.
	• Evaluate options for response actions.
	    • major damage may limit options to removal.
	    • decide which options are feasible and can be done successfully to protect human health and the environment.

V
Project Inspection

Project Inspection Checklist

Construction projects which involve asbestos, including asbestos abatement projects and renovation projects with some asbestos control or abatement elements, may be managed by either the regional Design and Construction (D&C) Division or the field office, depending on their scope and complexity.

Projects which may involve asbestos disturbance, even the small amounts typical of O&M programs, should consider asbestos in their design. The project designer should rely on previous asbestos inspection results when suspect materials at the work site were sampled, or when similar ("homogeneous") areas have been assessed, so that asbestos is assumed to be present at the work site. (Asbestos abatement projects require new asbestos inspections as part of the design process.) Where doubt remains about the presence or condition of ACM at a work site, a new inspection and assessment should be performed as part of the project design process.

Even when this asbestos element of the design process reveals no asbestos, all parties, including the project designer, O&M workers and supervisors, the FACM and project inspectors, must be alert to analyze any suspicious materials that are encountered during construction.

When such projects are managed by D&C, the Contracting Officer's Representative (COR) is a project manager on the D&C staff. The project inspection will then be performed by the project manager or by a contract construction quality manager (CQM) on behalf of the project manager. It is advisable to include the field office manager as a Contracting Officer's Technical Representative, and to involve the Facility Asbestos Control Manager (FACM) in review of the design and construction of the project. The facility's Planner/Estimators (P/E's) should usually be involved in the review of these projects, because of their extensive knowledge of the facility's operating system (e.g., HVAC, plumbing and electrical systems). Another advantage to the input provided by the P/E's is that project inspection checklists can be modified to reflect the special design considerations they may have implemented.

When such projects are managed by the field office, the COR is usually the field office manager. The FACM or a designated, asbestos-trained, alternate may serve as the project inspector, responsible for insuring that all work be conducted according to written specifications. The FACM's position of overseeing all aspects of the asbestos program within the facility puts him/her in a position whereby adequate supervision can take place. It is important also to include the facility's P/E's in the inspection process. Because the P/E's will have included any special conditions in the project specifications, their input can be critical when inspecting an abatement project. Additionally, the P/E's may be able to handle many problems which may arise, serve as troubleshooters in special instances, and provide logistical support for temporary power considerations and HVAC modifications.

The project inspectors will be responsible for monitoring the project and keeping a checklist of all aspects of the work. This checklist will serve as a written record of the operations that took place including work area preparation, personal protective equipment used, and work practices employed.

The project inspectors will monitor the project closely during all stages. Work area preparations will include isolating the work area by establishing negative pressure enclosures according to the specifications, shutting down or modifying the air handling systems making sure overpressurization does not occur elsewhere in the building, and compliance with applicable EPA, OSHA, and DOT regulations, including EPA and OSHA notification when required.

It is extremely important that close attention be paid to the actual work practices during abatement. The inspectors will have to enter the work area to monitor work practices, check the integrity of containment barriers, ensure compliance with worker protection regulations, and determine compliance with special conditions contained in the specifications. By making repeated inspections, scheduled and unscheduled, during the abatement project, the inspectors can detect any changes in work practices, rate potential problems, and act toward correcting them.

Asbestos-related projects will require a close working relationship among the FACM, field office manager, project manager and project inspectors. Obviously, the larger or more complex projects may entail more difficult problems, so anything these team members can do before the project begins will help to alleviate future mishaps. This will include cooperation on specification writing, coordination of project inspections, and performing a thorough visual inspection of the work area prior to clearance sampling.

Abatement projects of a smaller size are usually performed under maintenance contracts and include mechanical, electrical, and communication maintenance; elevator maintenance; and carpet installation and removal, among others. Because these projects may involve workers relatively unskilled in asbestos control procedures, the project may be more difficult to control. As a result, proper procedures for working with ACM must be explicitly stated in maintenance contracts. Also, these projects will require closer inspection by the field office than larger projects, and may not have the proper engineering controls that would be found on the more elaborate, large projects. It is important that the FACM be aware of who is working on any project within the building, and that work practices be closely monitored.

Among the resources available for inspection or consultation on project design are industrial hygienists from either the regional Safety and Environmental Management (S&EM) Branch/Division staff or contractors to the Branch/Division. While most O&M activities will not require industrial hygiene involvement, some of the most complex or sensitive projects may, as determined by consultation between the Buildings Manager and the S&EM Chief /Director.

PROJECT INSPECTION CHECKLIST

Building: ____________________ Project No.: __________

Address: ____________________ Date: __________

Location: ____________________ GSA Bldg. No.: __________

____

Removal Contractor: ____________________

GSA Supervisor: ____________________

Date and Time Inspected: __________ Date and Time Inspection Completed: __________

Pre-Abatement Conditions	Yes	No	Comments
1. Work area containment barriers			
2. Decontamination unit in place			
3. Critical barriers in place			
4. Stationary items sealed separately			
5. Non-stationary items removed from work area			
6. HVAC system modified/shut down			
7. Negative pressure system operating			Pressure differential _____ inches water
8. Proper danger signs posted			
9. Electrical system shut down & locked out			
10. EPA and OSHA notified, if required			

Personal Protective Equipment			
1. Type of respirators in use:			____ Supplied Air ____ PAPR ____ Negative Pressure Provide specifics (i.e., full face-pieces, pressure demand, etc.) ____________________
2. Appropriate respirator cartridges			
3. Type C system in use If Yes, system has:			
compressor failure alarm			
high temperature alarm/shut off			
CO monitor			
adequate capacity for work and emergency escape			
4. Protective clothing worn			
5. Head covering worn			
6. Foot covering worn			
7. Safety shoes worn			

Project Inspection Checklist
Page 3

Equipment	Yes	No	Comments
1. HEPA Vacuum in use			Number ________ Capacity ________
2. Surfactants being used			
3. Scaffolding designed and used properly			
4. Properly labeled disposal bags/drums			
5. Spray or injection units used			

Decontamination Unit	Yes	No	Comments
1. Properly set up			
2. Hangers/lockers for street clothing			
3. Sanitary conditions maintained			
4. Filtration system for shower waste water			Filter pore size(s) ________
5. Proper facilities for disposal of contaminated material			
6. Proper hygiene material (soap, towels)			

Abatement Work Practices	Yes	No	Comments
1. ACM adequately wetted			
2. Amended water being used			
3. HEPA vacuum in use			
4. Negative pressure maintained			Pressure differential ________
5. Items cleaned before removal from work area			
6. Rips or tears in plastic/Plastic falling from walls			
7. ACM waste promptly bagged			
8. Waste bagged while wet			
9. Waste bags/drums stored in area			
10. Protective clothing worn at all times			
11. Respirators always worn in contaminated areas			
12. Personal air sampling conducted			
13. Area air sampling conducted			
14. Debris and excess water promptly cleaned up			
15. Lockdown applied to substrate			
16. Work area enclosure and decontamination unit properly dismantled			
17. Clearance inspection checklist passed			
18. Prompt removal of waste from area			

Inspector's Comments ____

____

____

____

Signed ______________________ Date ______________________
(Inspector)

Company ______________________ Phone ______________________

Signed ______________________ Date ______________________
(Facility Asbestos Control Manager)

Clearance Inspection Checklist

This checklist can be used in conjunction with the Project Inspection Checklist to document the work practices from a project's start to its completion. More specifically, the Clearance Inspection Checklist will be completed after a clearance visual inspection is conducted and following clearance air sampling.

The building, abatement project number, date, and location of the work area should be recorded for each inspection conducted. Because, in some cases, more than one clearance inspection may need to be conducted, the number of the clearance inspection should be recorded. Additionally, to provide a quick reference to some of the project specifics, the type of asbestos-containing material (ACM) being abated and an approximate amount of material abated should be indicated.

The inspector will look primarily at two criteria: (1) whether any loose, residual dust remains on any surfaces within the work area, and (2) whether any gross or incompletely removed contamination exists within the area. If either residual dust or gross contamination is found, its location should be noted, and this area should receive additional attention during subsequent clearance inspections.

The results of the clearance inspection will be indicated (pass or fail) with space for additional comments such as overall appearance of the work area, or reasons for failure of the inspection.

An indication whether clearance sampling was conducted, the date it was conducted, and results should be included on this form. A more detailed record of the clearance air sampling process can be gained by referring to the Data Form for Air Samples.

Finally, the form should be signed and dated by the inspector and his/her affiliation should be indicated. The Facility Asbestos Control Manager will also sign and date the form, indicating completion of the inspection.

CLEARANCE INSPECTION CHECKLIST

Building: ____________________ **Project No.:** ____________________

Address: ____

Location: ____________________ **GSA Bldg. No.:** ____________________

____

Date and Time Inspection Started: ____________________ **Completed** ____________________

Asbestos-Containing Material Being Abated: ______ **Surfacing**

______ **Thermal System Insulation**

______ **Miscellaneous**

Approximate Amount of Material Abated: ______ **Sq. Ft.** ______ **LF**

Inspection for Residual Dust: ______ **None Found**

______ **Residual dust found on:**

______ floor ______ horizontal surfaces

______ pipes ______ HVAC equipment

______ lights ______ other (specify)

Inspection for Gross Contamination: ______ None Found

______ Gross contamination found on:

______ deck ______ structural members

______ pipes ______ other (specify)

______ floors ____________________

Results of Clearance Inspection: ______ **Pass** ______ **Fail**

Comments: ____

____

Clearance of Air Sampling Conducted: ______ **Yes** ______ **No** **Date:** ______________

Results of Clearance Air Sampling: ______________ **Area Passes** ______ **Yes** ______ **No**
Copies of data sheets attached.

Area Inspected By: ____________________ **Date:** ______________ **Time:** __________

Inspector's Company/Organization: ____________________ **Phone:** ____________________

Signed: ____________________ **Date:** ____________________
(Facility Asbestos Control Manager)

VI

Waste Disposal Record Form

Waste Disposal Record Form

This form is to be completed upon the generation of asbestos-containing waste material and transport to the landfill. Information will be collected as to whether the waste was generated during wet removal operations, or under dry removal operations which require advance EPA approval, or as a result of collection of debris. If the material is removed under dry conditions, a copy of EPA approval forms should be attached. Additionally, information should be given regarding the containerization of the waste, whether in labeled 6 mil polyethylene bags, metal or fiberboard drums, or other approved containers.

Upon initiation of the waste disposal procedures, a chain of custody should be established. As each of the disciplines listed on the form (contractor, waste hauler, landfill operator, and owner) completes his/her involvement in the chain, the appropriate blank should be checked. All landfill receipts and forms (including copies of hazardous waste manifests) should be attached. Due to the potential legal liability associated with disposal of asbestos-containing wastes, all parties involved should acknowledge their receipt of the disposal records, including the building owner or owner's representative.

The name, address, phone number, and landfill contact would be noted on this form.

In following federal requirements concerning disposal notification, all applicable notifications of Federal, State, and Local NESHAP officials in the U.S. EPA or an agency delegated by the EPA to receive this notification should be indicated. The date of notification should be recorded, and all verifications of notifications, as well as copies of the original notification, should be attached.

Although asbestos is not listed by the EPA as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), many states with EPA-approved state RCRA plans have classified asbestos waste as hazardous, requiring stringent handling and disposal procedures. The state hazardous waste agency should be contacted in advance of a project for approved disposal methods, recordkeeping requirements, and a list of facilities accepting asbestos-containing waste.

Under Superfund regulations, when more than one pound of friable asbestos is released into the environment, or if there is a threat of such a release, the Facility Asbestos Control Manager (FACM), or the manager of an asbestos-related construction project, must immediately notify the National Response Center at 800-424-8802 (in Washington, DC, 202-426-2675). GSA, or the contractor, is responsible for removing the asbestos from the environment or taking other appropriate remedial action in response to the actual or threatened release.

The form should be signed and dated by the project inspector, the GSA Contract number (if applicable) should be indicated, and the FACM should sign the form.

WASTE DISPOSAL RECORD FORM

Building: ______________________ GSA Bldg. No.: ______________

Address: ______________________ GSA Project No.: ______________

Area of Work: ____

WASTE INFORMATION

ACM Removal

_____ Wet Removal
_____ Dry Removal (EPA Approval Forms Attached)

Containerization (check all that apply)

_____ Labelled 6 mil bags
_____ Metal drums (labeled) _____ Fiberboard drums (labeled)
_____ Other (specify) ______________________________

DISPOSAL NOTIFICATION (Check All That Apply and Provide Copies)

_______ Local NESHAP notification Date: _________
_______ State NESHAP notification Date: _________
_______ Federal EPA notification Date: _________
_______ Landfill Operator Date: _________

CHAIN OF CUSTODY (Attach Landfill Receipts/Forms)

_____ Contractor Date _________ Manifest No.: _________
_____ Waste hauler Date _________ Manifest No.: _________
_____ Landfill operator Date _________ Manifest No.: _________

DISPOSAL SITE

Landfill name: ______________________________
Mailing address: ______________________________
Phone number: ______________________________
Amount of material: ______________________________

Form Completed By ______________________ Date: ______________

GSA Contract # ______________________

Signed: ______________________ Date: ______________
(Facility Asbestos Control Manager)

VII

Employee Training & Medical Information

Verification of Employee Training

When working around and with asbestos-containing material, it is important that workers be trained in the dangers of asbestos and the proper methods of asbestos control. When awarding a maintenance contract or directing staff maintenance workers, it is important that those workers involved in potentially hazardous situations be trained, and that each Facility Asbestos Control Manager (FACM) verify this training.

When using an in-house staff for the smaller-scale operations, verification will be easier than when using outside contractors. For all in-house personnel who receive training regarding asbestos abatement, operations and maintenance, or custodial programs, a verification form should be completed and a copy of a training certificate attached. Information on the form should include the employee name, position or title, and organizational unit. The training course title and training provider should also be provided. The date and length of course should be recorded, and whether the course has been granted full approval by the U.S. Environmental Protection Agency, or by an EPA-approved state program. Additionally, the employee's name should be entered into the Master List of Training Information. This Master List should include Social Security number, organizational unit within GSA, title of training received, completion date, and the name of the training organization.

Maintenance workers should be trained in asbestos-related work practices prior to their working in a building with asbestos-containing materials (ACM). Custodial workers should be given asbestos awareness training (including how to avoid disturbing ACM and how to respond when encountering disturbed ACM) within 30 days after they start work in such buildings. (GSA custodial workers and contract custodial workers are not to clean up asbestos debris themselves.) It is recommended that contractors submit verification of employee training at the time a contract is bid in order to determine qualifications. In the event this is not feasible, verification of training should be submitted within 30 days of the awarding of the contract. Additionally, proof of training should be submitted no later than 30 days after a new contractor employee begins work within a building containing ACM. By verifying proper training, the FACM can keep better control of who may work on a project, and prevent unauthorized or untrained individuals from entering a hazardous area or performing work improperly.

Verification Of Employee Training

Employee Name ______________________________

Social Security # ______________________________

Position ______________________________

Employee: ________ GSA ________ Non-GSA

Training Provider ______________________________

Address ______________________________

Training Course Title ______________________________

____

Date of Course ______________________________

Length of Course (Hours) ______________________________

Was This Course: ____ Initial Training ____ Update Training

Does Course Have Full Approval of U.S. Environmental Protection Agency? ____

Does Employee Participate in Respirator Program? ____ Yes ____ No

Does Employee Participate in Medical Surveillance Program? ____ Yes ____ No

Attach Copy of Certificate Indicating Successful Completion of Training (including appropriate examination).

MASTER LIST OF TRAINING INFORMATION

EMPLOYEE NAME	SOCIAL SECURITY NUMBER	DEPARTMENT	TRAINING RECEIVED	COMPLETION DATE	TRAINING ORGANIZATION

Medical Questionnaires

Asbestos-related operations and maintenance work in GSA buildings is covered by the OSHA Asbestos Construction Industry Standard. It is GSA practice to have employees who work with asbestos-containing materials in abatement or operations and maintenance obtain annual medical examinations. This approach is consistent with the OSHA Construction Industry Asbestos Standard, described below, but provides greater protection for the workers by not requiring waiting until the action level is exceeded before starting the exam cycle.

Employees covered under OSHA's Asbestos Standard for the Construction Industry (29 CFR 1926.58) must be enrolled in a medical surveillance program when asbestos exposures meet or exceed the action level of 0.1 fibers per cubic centimeter of air based on an 8-hour time weighted average and/or the excursion limit of 1.0 fibers per cubic centimeter of air based on a 30-minute time weighted average, for 30 or more days per year, or those employees who wear negative pressure respirators. The medical surveillance program will include completion of the attached Initial Medical Questionnaire (Part I) upon initial examination, and completion of the Periodic Medical Questionnaire (Part II) on an annual basis.

While the OSHA standard requires that medical records be retained for the duration of employment plus 30 years, GSA requires that medical records for GSA employees be retained permanently with an Asbestos Records Label on all asbestos medical file folders.

The GSA building manager or Facility Asbestos Control Manager should have a master list of employees in the asbestos medical surveillance program and ensure that employees are current in their medical examinations.

From Federal Register/Vol. 51, No. 119/Friday, June 20, 1986/Rules and Regulations

Part 1

INITIAL MEDICAL QUESTIONNAIRE

1. Name ______________________________

2. Social Security # ___ ___ ___ ___ ___ ___ ___ ___ ___
   1 2 3 4 5 6 7 8 9

3. CLOCK NUMBER ___ ___ ___ ___ ___ ___
   10 11 12 13 14 15

4. PRESENT OCCUPATION ______________________________

5. PLANT ______________________________

6. ADDRESS ______________________________

7. ______________________________
   (Zip Code)

8. TELEPHONE NUMBER ______________________________

9. INTERVIEWER __________ ____________________

10. Date ______________ ___ ___ ___ ___ ___ ___
    16 17 18 19 20 21

11. Date of Birth ________ ___ ___ ___ ___ ___ ___
    22 23 24 25 26 27

12. Place of Birth ______________________________

13. Sex
    1. Male ____
    2. Female ____

14. What is your marital status?
    1. Single ____
    2. Married ____
    3. Widowed ____
    4. Separated/ Divorced ____

15. Race
    1. White ____
    2. Black ____
    3. Asian ____
    4. Hispanic ____
    5. Indian ____
    6. Other ____

16. What is the highest grade completed in school? ______________________
    (For example, 12 years is completion of high school)

OCCUPATIONAL HISTORY.

17 A. Have you ever worked full time (35 hours per week or more) for 6 months or more? 1. Yes ____ 2. No ____

IF YES TO 17A:

B. Have you ever worked for a year or more in any dusty job? 1. Yes ____ 2. No ____ 3. Does Not Apply ____

Specify job/industry ________ Total Years Worked ____________

Was dust exposure: 1. Mild _____ 2. Moderate ______ 3. Severe ____

C. Have you ever been exposed to gas or chemical fumes in your work? 1. Yes ____ 2. No ________

Specify job/industry ____________ Total Years Worked ________

Was exposure: 1. Mild _____ 2. Moderate ______ 3. Severe ______

D. What has been your usual occupation or job — the one you have worked at the longest?

1. Job occupation ________________________
2. Number of years employed in this occupation ____________
3. Position/job title ________________________
4. Business, field or industry ____________________

(Record on lines the years in which you have worked in any of these industries, e.g. 1960-1969)

Have you ever worked:

		YES	NO
E.	In a mine?	____	____
F.	In a quarry?	____	____
G.	In a foundry?	____	____
H.	In pottery?	____	____
I.	In a cotton, flax, or hemp mill?	____	____
J.	With asbestos?	____	____

18. PAST MEDICAL HISTORY

		YES	NO
A.	Do you consider yourself to be in good health?	______	______
	If "NO" state reason ______________________________		
B.	Have you any defect of vision?	______	______
	If "YES" state nature of defect ______________________		
C.	Have you any hearing defect?.	______	______
	If "YES" state nature of defect ______________________		
D.	Are you suffering from or have you ever suffered from:		
a.	Epilepsy (or fits, seizures, convulsions?)	______	______
b.	Rheumatic fever?	______	______
c.	Kidney disease?	______	______
d.	Bladder disease?	______	______
e.	Diabetes?	______	______
f.	Jaundice?	______	______

19. CHEST COLDS AND CHEST ILLNESSES

19 A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time)
1. Yes ____ 2. No ____
3. Don't get colds ________

20 A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?
1. Yes ____ 2. No ____

IF YES TO 20A:

B. Did you produce phlegm with any of these chest illnesses?
1. Yes ____ 2. No ____
3. Does Not Apply ________

C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?
Number of illnesses ____
No. such illnesses ____

21. Did you have any lung trouble before the age of 16? 1. Yes ____ 2. No ____

22. Have you ever had any of the following?

1A. Attacks of bronchitis? 1. Yes ____ 2. No ____

IF YES TO 1A:

B. Was it confirmed by a doctor? 1. Yes ____ 2. No ____
3. Does Not Apply ____

C. At what age was your first attack? Age in Years ____
Does Not Apply ____

2A. Pneumonia (include bronchopneumonia)? 1. Yes ____ 2. No ____

IF YES TO 2A:

B. Was it confirmed by a doctor? 1. Yes ____ 2. No ____
3. Does Not Apply ____

C. At what age did you first have it? Age in Years ____
Does Not Apply ____

3A. Hay Fever? 1. Yes ____ 2. No ____

B. Was it confirmed by a doctor? 3. Does Not Apply ____

C. At what age did it start? Age in Years ____
Does Not Apply ____

23. A. Have you ever had chronic bronchitis? 1. Yes ____ 2. No ____

IF YES TO 23A:

B. Do you still have it? 1. Yes ____ 2. No ____
3. Does Not Apply ____

C. Was it confirmed by a doctor? 1. Yes ____ 2. No ____
3. Does Not Apply ____

D. At what age did it start? Age in Years ____
Does Not Apply ____

24. A. Have you ever had emphysema? 1. Yes ____ 2. No ____

IF YES TO 24A:

B. Do you still have it? 1. Yes ____ 2. No ____
3. Does Not Apply ____

C. Was it confirmed by a doctor? 1. Yes ____ 2. No ____
3. Does Not Apply ____

D. At what age did it start? Age in Years ____
Does Not Apply ________

25. A. Have you ever had asthma? 1. Yes ____ 2. No ____

IF YES TO 25a:
B. Do you still have it? 1. Yes ____ 2. No ____
3. Does Not Apply ________

C. Was it confirmed by a doctor? 1. Yes ____ 2. No ____
3. Does Not Apply ________

D. At what age did it start? Age in Years ____
Does Not Apply ________

E. If you no longer have it, at what age did it stop? Age Stopped ____
Does Not Apply ________

26. Have you ever had:

A. Any other chest illness? 1. Yes ____ 2. No ____
If yes, Please specify ____________________

B. Any chest operations? 1. Yes ____ 2. No ____
If yes, Please specify ____________________

C. Any chest injuries? 1. Yes ____ 2. No ____
If yes, Please specify ____________________

27. Has a doctor ever told you that you had heart trouble? 1. Yes ____ 2. No ____

IF YES TO 27A:
B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes ____ 2. No ____
3. Does Not Apply ________

28. A. Has a doctor every told you that you had high blood pressure? 1. yes ____ 2. No ____

IF YES TO 28A:
B. Have you had any treatment for high blood pressure (hypertension) in the past ten years? 1. Yes ____ 2. No ____
3. Does Not Apply ________

29. When did you last have your chest x-rayed? (Year) __ __ __ __
25 26 27 28

30. Where did you last have your chest x-rayed (if known)? ____________

What was the outcome? ____________________

FAMILY HISTORY

31. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:

		FATHER			MOTHER	
	1. Yes	2. No	3. Don't Know	1. Yes	2. No	3. Don't Know
A. Chronic Bronchitis?	___	___	___	___	___	___
B. emphysema?	___	___	___	___	___	___
C. Asthma?	___	___	___	___	___	___
D. Lung cancer?	___	___	___	___	___	___

		FATHER			MOTHER	
	1. Yes	2. No	3. Don't Know	1. Yes	2. No	3. Don't Know
E. Other chest conditions?	___	___	___	___	___	___
F. Is parent currently alive?	___	___	___	___	___	___

	FATHER		MOTHER	
G. Please Specify	___	Age if Living	___	Age if Living
	___	Age at Death	___	Age at Death
	___	Don't Know	___	Don't Know
H. Please specify cause of death	________________		________________	

COUGH

32. A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) (If no, skip to question 32C.) 1. Yes ___ 2. No. ___

B. Do you usually cough as much a 4 to 6 times a day 4 or more days out of the week? 1. Yes ___ 2. No ___

C. Do you usually cough at all on getting up or first thing in the morning? 1. Yes ___ 2. No ___

D. Do you usually cough at all during the rest of the day or at night? 1. Yes ___ 2. No ___

IF YES TO ANY OF ABOVE (32A, B, C, or D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO NEXT PAGE.

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes ____ 2. No ____ 3. Does Not Apply ____

F. For how many years have you had the cough? Number of Years ____ Does Not Apply ____

33. A. Do you usually bring up phlegm from your chest? (Count phlegm with the first smoke or on first going out doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 33C.) 1. Yes ____ 2. No ____

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes ____ 2. No ____

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes ____ 2. No ____

D. Do you usually bring up phlegm at all during the rest of the day or at night? 1. Yes ____ 2. No ____

IF YES TO ANY OF THE ABOVE (33A, B, C, OR D), ANSWER THE FOLLOWING: IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO 34A.

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes ____ 2. No ____ 3. Does Not Apply ____

F. For how many years have you had trouble with phlegm? Number of Years ____ Does Not Apply ____

EPISODES OF COUGH AND PHLEGM

34. A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year? 1. Yes ____ 2. No ____
***(For persons who usually have cough and/or phlegm)**

B. IF YES TO 34A:
For how long have you had at least 1 such episode per year? Number of Years ____ Does Not Apply ____

WHEEZING

35.	A.	Does your chest ever sound wheezy or whistling	
		1. When you have a cold?	1. Yes ____ 2. No ____
		2. Occasionally apart from colds?	1. Yes ____ 2. No ____
		3. Most days or nights?	1. Yes ____ 2. No ____
	B.	IF YES TO 1, 2, or 3 in 35A: For how many years has this been present?	Number of Years ____ Does Not Apply ________
36.	A.	Have you ever had an attack of wheezing that has made you feel short of breath?	1. Yes ____ 2. No ____
		IF YES TO 36A:	
	B.	How old were you when you had your first such attack?	Age in Years ____ Does Not Apply ____
	C.	Have you had 2 or more such episodes?	1. Yes ____ 2. No ____ 3. Does Not Apply ________
	D.	Have you ever required medicine or treatment for the(se) attack(s)?	1. Yes ____ 2. No ____ 3. Does Not Apply ________

BREATHLESSNESS

37.		If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 39A. Nature of condition(s) ________________________	
38.	A.	Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill?	1. Yes ____ 2. No ____
		IF YES TO 38A:	
	B.	Do you have to walk slower than people of your age on the level because of breathlessness?	1. Yes ____ 2. No ____ 3. Does Not Apply ________
	C.	Do you ever have to stop for breath when walking at your own pace on the level?	1. Yes ____ 2. No ____ 3. Does Not Apply ________
	D.	Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level?	1. Yes ____ 2. No ____ 3. Does Not Apply ________
	E.	Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs?	1. Yes ____ 2. No ____ 3. Does Not Apply ____

TOBACCO SMOKING

39. A. Have you ever smoked cigarettes? (No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.)
1. Yes ____ 2 No. ____

IF YES TO 39A:

B. Do you now smoke cigarettes (as of one month ago)?
1. Yes ____ 2. No ____

C. How old were you when you first started regular cigarette smoking?
Age in Years ____
Does Not Apply ________

D. If you have stopped smoking cigarettes completely, how old were you when you stopped?
Age Stopped ____
Check if still smoking ____
Does Not Apply ________

E. How many cigarettes do you smoke per day now?
Cigarettes per day ____
Does Not Apply ________

F. On the average of the entire time you smoked, how many cigarettes did you smoke per day?
Cigarettes per day ____
Does Not Apply ________

G. Do or did you inhale the cigarette smoke?
1. Does Not Apply ________
2. Not At All ____
3. Slightly ____
4. Moderately ____
5. Deeply ____

40. A. Have you ever smoked a pipe regularly? (Yes means more than 12 oz. of tobacco in a lifetime.)
1. Yes ____ 2. No ____

IF YES TO 40A:
FOR PERSONS WHO HAVE EVER SMOKED A PIPE

B. 1. How old were you when you started to smoke a pipe regularly?
Age ____

2. If you have stopped smoking a pipe completely, how old were you when stopped?
Age Stopped ____
Check if still smoking pipe
Does Not Apply ________

C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week?
oz. per week ____
(a standard pouch of tobacco contains 1-1/2 oz.)
Does Not Apply ________

	D.	How much pipe tobacco are you smoking now?	Oz. per week Not currently smoking a pipe	____ ____
	E.	Do you or did you inhale the pipe smoke?	1. Never smoked 2. Not at all 3. Slightly 4. Moderately 5. Deeply	____ ____ ____ ____ ____
41.	A.	Have you ever smoked cigars regularly? (Yes means more than 1 cigar a week for a year)	1. Yes ____ 2. No	____

IF YES TO 41A:
FOR PERSONS WHO HAVE EVER SMOKED CIGARS

B.	1.	How old were you when you started smoking cigars regularly?	Age	____
	2.	If you have stopped smoking cigars completely, how old were you when stopped?	Age Stopped Check if still smoking cigars Does Not Apply	____ ____ ____
C.		On the average over the entire time you smoked cigars, how many cigars did you smoke per week?	Cigars per week Does Not Apply	____ ____
D.		How many cigars are you smoking per week now?	Cigars week Check if not smoking cigars currently	____ ____
E.		Do you or did you inhale the cigar smoke?	1. Never smoked 2. Not at all 3. Slightly 4. Moderately 5. Deeply	____ ____ ____ ____ ____

Date ________________ **Signature** ____________________________

From Federal Register/Vol. 51, No. 119/Friday, June 20, 1986/Rules and Regulations

Part 2

PERIODIC MEDICAL QUESTIONNAIRE

1. Name ______________________________

2. Social Security # ___ ___ ___ ___ ___ ___ ___ ___ ___
   1 2 3 4 5 6 7 8 9

3. CLOCK NUMBER ___ ___ ___ ___ ___ ___
   10 11 12 13 14 15

4. PRESENT OCCUPATION ______________________________

5. PLANT ______________________________

6. ADDRESS ______________________________

7. ______________________________ (Zip Code)

8. TELEPHONE NUMBER ______________________________

9. INTERVIEWER ______________________________

10. Date ______________ ___ ___ ___ ___ ___ ___
    16 17 18 19 20 21

11. What is your marital status?
    1. Single ____
    2. Married ____
    3. Widowed ____
    4. Separated/ Divorced ____

OCCUPATIONAL HISTORY

12 A. In the past year, did you worked full time (30 hours per week or more) for 6 months or more? 1. Yes ____ 2. No ____

IF YES TO 12A:

12. B. In the past year, did you work in any dusty job? 1. Yes ____ 2. No ____ 3. Does Not Apply ____

12. C. Was dust exposure: 1. Mild ____ 2. Moderate ____ 3. Severe ____

12. D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes ____ 2. No ____

12. E. Was exposure: 1. Mild ____ 2. Moderate ____ 3. Severe ____

12. F. In the past year, what was your:
1. Job/occupation ____
2. Position/job title? ____

13. RECENT MEDICAL HISTORY

13. A. Do you consider yourself to be in good health? Yes ____ No ____

If NO, state reason ____

13. B. In the past year, have you developed:

	Yes	No
Emphysema?	____	____
Rheumatic fever?	____	____
Kidney disease?	____	____
Bladder disease?	____	____
Diabetes?	____	____
Jaundice?	____	____
Cancer?	____	____

14. CHEST COLDS AND CHEST ILLNESSES

14. A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time)
1. Yes ____ 2. No ____
3. Don't get colds ____

15. A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?
1. Yes ____ 2. No ____
3. Does not Apply ____

15. B. IF YES TO 15A:
Did you produce phlegm with any of these chest illnesses?
1. Yes ____ 2. No ____
3. Does Not Apply ____

15. C. In the past years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?
Number of illnesses ____
No. such illnesses ____

16. RESPIRATORY SYSTEM

In the past year, have you had:

	Yes or No	Further Comment on Positive Answers
Asthma	______	
Bronchitis	______	
Hay Fever	______	
Other Allergies	______	
Pneumoria	______	
Tuberculosis	______	
Chest Surgery	______	
Other Lung Problems	______	
Heart Disease	______	

Do you have:

	Yes or No	Further Comment on Positive Answers
Frequent colds	______	
Chronic cough	______	
Shortness of breath when walking or climbing one flight of stairs	______	
Do you:		
Wheeze	______	
Cough up phlegm	______	
Smoke cigarettes	______	Packs per day __ How many years __

Date ______________ Signature ____________________________

Mr. LUKEN. Thank you, Mr. McMillen.

Thank you, Ms. Fisher. I presume that these further steps you have described are not going to be taken in the next few weeks, so that we have nothing specifically to hold the record open for in reference to questions. But the record will be held open for 30 days, and if there's anything you would care to submit, or if any questions come in, we'll be forwarding them to you as they come in. So we thank you very much.

Ms. FISHER. Thank you.

Mr. LUKEN. It looks like we have a vote on. In the interest of moving along, we will take the next panel. We are going to rearrange things a little bit because of plane schedules. The next panel will be Dr. Levin and Dr. Gee. We flipped a coin and we'll go alphabetically.

Dr. Gee, we have your testimony, which we will receive. We will give you approximately 5 minutes to summarize it or tell us what you can. I'm sure there will be questions to amplify it.

STATEMENTS OF J. BERNARD L. GEE, PROFESSOR OF MEDICINE, YALE UNIVERSITY SCHOOL OF MEDICINE; AND STEPHEN M. LEVIN, MEDICAL DIRECTOR, MOUNT SINAI-IRVING J. SELIKOFF OCCUPATIONAL HEALTH CLINICAL CENTER, NEW YORK CITY

Mr. GEE. I will not read my statement, and I'm going to pass up a lot of the preliminary stuff in here and try to address three or four things straight out.

Let's start by just reminding ourselves of three or four important differences that get mingled up. I think the first one is to recognize that asbestos is a commercial term and it isn't anything else other than that. It's not even a scientific term.

Broadly speaking, there are two groups—the amphiboles, which we'll call "nasty", and the chrysotile, which, in spite of some of the testimony that will be given later, we'll not call safe, but we'll say "safer". Second, the commonest form of that in buildings is chrysotile, mostly from Canada.

A second very important distinction is to recognize there are two kinds of people in buildings. There are two populations, those who work on and those who either work or dwell in buildings. The latter are a majority and that's what that Science article primarily addressed. They are the responsibility of EPA.

By contrast, there's a group of people who work in buildings and who are, in some instances, necessarily working with asbestos. I certainly have seen over the years a number of people whose business it is to take care of the boilers of a number of rather substantial Connecticut insurance companies who clearly have evidence of their asbestos exposure. This is not a new observation. It has been known for a long time. Although we may have some more data on it, that group clearly is a worker with asbestos as, indeed, would be an abatement worker, and a separate and appropriate management of that has to be considered. Whether it's an OSHA regulation or a specific legislative act is for you ladies and gentlemen to decide.

With that preamble, let me now address the other crucial distinction—and there are several here—on the kinds of disease that as-

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bestos produces. The great name of the game in obfuscation is to mix everything up and allow it to part and assume they're all the same. They are not. The first disease is asbestosis, or lung fibrosis. I submit there is not one scrap of data to indicate that in American schools, or any other buildings, by dwellers in or workers in as opposed to on, that asbestosis has occurred.

Now, that's the fibrosis. The reason for that is dose. It's entire compatible with the numbers that have been observed of airborne levels in workplaces contrasted with what we see in the buildings and, for that matter, in outside air.

The second issue is lung cancer, which is clearly far more alarming. I simply must address this issue. The primary cause of lung cancer in everyone is smoking. The major dominant factor in even asbestos workers is still smoking. I am not, by that, seeking to disinculpate, if that's the right word, asbestos in all lung cancers in asbestos workers. That would be wrong. But there's no doubt that most of them are smokers.

The point I want to make is that for society we have now got to look at a population of people who are exposed to something between 1/200th to 1/2000th of the historic exposures and 1/200th of the allowable exposures to asbestos, whose smoking habits are drastically changing and should be enforceably changed, certainly in public buildings, and in whom the switch from nonfilter to filter cigarettes, which by the way has an additional risk if you don't do it, has all changed.

The point I want to make is that asbestos alone, in the concentrations being observed, in ambient air and buildings alone, without smoking, is a minuscule risk for lung cancer. If we wish to pay the abatement business to save smoking, I think, as a personal citizen now, that is in error.

The third point I wanted to make—and this is the issue of the schools—that is, that mesothelioma, which is a separate lung cancer—I'm sorry. Let me rephrase that. It is a separate cancer affecting the lining membrane of the lung. This is a totally different disease. Fortunately, it's rare, and the exact incidence is of the order of 20 cases per million per year in the entire population.

Now, there is a lot of argument about this, but I personally believe—and with all due respect, I would suggest that those who hold conferences should invite people to that conference who have these views and who are in a position to prove it—that the evidence that chrysotile caused this is minimal. That is the so-called safe asbestos.

Now, there isn't any doubt that the others will do it. There is some doubt whether chrysotile ever does it. The problem that is quite correctly pointed out is that what is called chrysotile is rather like asking what's in ice cream. Sometimes there are things in it you're not quite sure about. In this instance, there's another fiber called tremolite that accounts for 1 percent of it. That is a very definite agent capable of causing mesothelioma.

However, there are a number of reasons to believe that that's not a big issue in buildings, which we could discuss if you wish. The point I still want to make is that the epidemiology on which that is based treats chrysotile soup, that is, chrysotile prostremolite, as the substrate. In other words, the data is based on the mixture, not on the pure form. So it's still valid.

I think those are the main points about the types of asbestos that need to be made, and I think I will just briefly tell two very quick stories, because although they're actually very small numbers, they are horrifying examples of what unfortunately is the truth.

Any of us who grew up in London during World War II will know that we all had gas masks, and the God-given civilians got chrysotile in their filters. The unfortunate gentlemen or others who had to fight got a military gas mask in which the amphibole crocidolite was the filter. Those were made by women working in the north of England. There was one mesothelioma in the chrysotile group and that was due to another exposure. Fifteen percent of the people who worked with massive doses of this pure crocidolite went down with mesotheliomas 20 to 30 years later.

Now, without naming the cigarette company, there is one company that used asbestos in its filters. Some of them were crocidolite, or rather amphiboles. Some of them were not. The chrysotile manufacturing totals had no trouble. The reverse was true with the others. Those are small groups, but they have the misery of being the kind of experiment you can only normally do on rats and had the misfortune, out of ignorance, at that point to do on people. It really clarified the issue. There is a stack of epidemiology to prove it, and this should have been represented at all meetings on this subject.

I would like just to turn to a couple of final summary remarks and then, with your permission, I would like to read something that really reflects me as a person rather than as a scientific person. I want to conclude by saying that for asbestosis there is no risk. For lung cancer, the risk is a voluntary one; it's smoking. For mesothelioma, it is an involuntary risk, but it's tiny, provided asbestos is kept at the present levels and is not messed with.

By the way, the worst job an insulator ever had to do was rip out dry asbestos. That's called abatement. I testified once in a Federal institution, a Navy yard, on behalf of workers who were doing exactly that, who all they wanted, unfortunately, was hazardous pay. I wanted that, but I also wanted a better system for doing it. The testimony was given on the basis of showing some British Navy types running around in your spacesuits ripping the stuff out of the interiors of British aircraft carriers, a practice that was not going on 10 years ago in certain parts of this community.

All right. To conclude, first, as Ms. Fisher has eloquently said, and cleanly said, I have nothing but praise and appreciation and sympathy with what she is saying. We did not lampoon the EPA. The editor did; we didn't. We just said that the net result of the EPA, when it got out in schools, was the reverse of what I think they really meant and certainly what they mean now. Abatement was the order of the day, not containment.

Second—and this I think is absolutely crucial—it is imperative that the general public should be addressed by professional news media and physicians alike with balanced education, with what can only be called staged displays and demagogic exercises with more heat than light. There are plenty of them in various parts of the press.

I submit that we require all asbestos and abatement workers be subject at least to the equivalent of the OSHA regulations, that in-place maintenance with limited abatement by properly trained and equipped workers is all right, that public education is essential—and I want to address that in a moment—and finally, I would like to remark that the committee that is now meeting, to which Ms. Fisher referred, should, in fact, have an opportunity to report. In my neck of the woods there's an old saying, "If it ain't broke, don't fix it. But if it is broke, fix it right."

Mr. Luken. You've run over your 5 minutes, but please conclude within 60 seconds.

Mr. Gee. I will conclude then, sir, by saying that is my testimony. I would like to introduce just two sentences into evidence from various reports.

This one is from an address by William K. Reilly, Administrator of the U.S. EPA, given on July 12, 1990:

> Based on recent meetings I have held with school officials, including a delegation based on the U.S. Catholic Conference, on discussions with members of Congress, and on a recent spate of inaccurate and sometimes tendentious articles and columns in the news media, it is clear to me that a considerable gap has opened up between what the EPA is trying to say about asbestos and what the public has been hearing.

One final one, from a recent article in Science, by people who are in the business of risk management. It says:

> Society's system for managing risks to life and limb is deeply flawed. We overact to some risks and virtually ignore others.

Thank you for letting me read those into the record. I would like to at least ask permission to enter them——

Mr. Luken. Without objection, they will be received.

[The prepared statement of Mr. Gee follows:]

Prepared Statement of J. Bernard L. Gee, Professor of Medicine, Yale University School of Medicine and Director, Winchester Chest Clinic, Yale New Haven Hospital

Mr. Chairman and members of the committee: Thank you for the invitation to testify today. My name is Bernard Gee. I am a Professor of Medicine at Yale. In 1971 I editorially supported the lowering of the OSHA asbestos standard (1). I once testified for workers involved in asbestos removal. In the last 2 years, having reviewed many medical records, I subsequently testified in court on seven occasions at the request of counsel for asbestos product manufacturers.

I am a coauthor of two reviews (2,3), one by an international interdisciplinary group, on asbestos and health matters. I have sent copies of my earlier testimony before the Senate Subcommittee on Toxic Substances, Environmental Oversight, Research and Development together with related correspondence to Judy Lamson, Esquire.

Asbestos in the workplace has unquestionably been a very serious cause of morbidity and premature deaths from insidious lung fibrosis and malignant respiratory disease for certain workers, and sometimes for their families. In the face of such tragic consequences, asbestos acquired a fearsome reputation.

The purpose of my testimony is not to deny the past but to address the present situation of asbestos in buildings including schools.

Asbestos is a commercial term for a group of fibrous minerals which differ mineralogically and in their biologic effects. Two types are important, curly chrysotile and rod/needle amphiboles (crocidolite, amosite and tremolite). After lung deposition (an essential prerequisite) both can cause asbestosis but differ in carcinogenic capabilities, which also depend on fiber dimensions. Historically work place airborne fiber levels were high—commonly 100 f/cc. The OSHA asbestos standard is now 0.2 f/cc. In further sharp contrast, airborne fiber levels of biologically critical dimensions in buildings, schools and outside air are all less than 0.001 f/cc (200 to 2,000 times less than the OSHA standard). The validity of these data is discussed in the Harvard Symposium and in letters to Science (4).

There are at least two populations in buildings—those who work on and those who either work or dwell in buildings. The latter, the majority, are the population at large for which EPA is the regulatory agency. The former, a minority who work on buildings obviously become, where asbestos is involved, asbestos workers who should be subject to OSHA regulations.

It is not news that some such workers (e.g. heating/boiler engineers in schools) develop asbestos-related disorders. All of us who see such patients have known this for some years and this was recognized in our papers and letters. Peer review publications of recent studies of similar worker cohorts are awaited. We agree with Senator Metzenbaum that asbestos abatement and other such asbestos workers should be subject to the same OSHA or other appropriate regulations, be the building a school or Trump Plaza! In general the resulting disorders are most commonly pleural changes which can produce some lung function loss.

It is this worker group to which the airborne "fiber" data of Dr Sawyer (personal communication) apply since the measurements were made after structural disturbance. He largely employed the then readily available phase contrast microscopy which, though chrysotile was present, overestimates the true asbestos fiber numbers.

Asbestos and the General Public. Here again certain issues have become commingled for some scientists and more so for John Q. Public. It is essential to consider the asbestos-related disorders separately since their risk factors vary widely.

(1) Asbestosis—lung fibrosis—here the risk factor is dose. Asbestosis has never been shown clinically to occur in the general public but only in either asbestos workers or rarely in household contacts since the general airborne fiber levels are far too low.

(2) Lung Cancer. Since smoking, a voluntary act, alone accounts for the vast majority of lung cancers, it is tobacco not asbestos that is the risk factor accounting for 130,000 deaths annually. Asbestos alone, without smoking, even in the workplace with historic high exposures, is a rare cause of lung cancer. The contribution of asbestos to lung cancer in the smoking general public becomes tiny when it is recalled that (a) early observations were based on historic high cigarette (often nonfilter) and very high (100 f/ml!) asbestos exposures and (b) that ambient critical asbestos fiber levels in or outside buildings are now 1/200th—1/2000th of the present OSHA standard of 0.2 f/ml. Further, to the extent that asbestos-related lung cancers in smoking workers only occur in the presence of asbestoses, the general smoker population has nearly no risk for asbestos-related lung cancer since asbestosis rarely if ever occurs in general society.

Finally, the maximal estimate of 6 lung cancers per 10 million schoolchildren exposed to 0.001 f/ml of asbestos for 6 years is a worst case scenario employing the highest nonthreshold risk estimate known for the commonest building asbestos material, chrysotile.

One wonders how many of our children are exposed in their homes to passive smoking at levels of a pack a day per parent?! The Surgeon General has recently emphasized this risk.

While there are different lung cancer rates with different asbestos types, these differences are small.

(3) Mesothelioma. This is a totally distinct disease from lung cancer, arising from different cells in membranes (pleura and peritoneum) and unrelated to smoking. This fatal disorder is fortunately uncommon (20 cases/million persons/year) and in our opinion, the risk factor here is fiber type. The risk is highest with crocidolite and least with chrysotile by factors of between 15 and 300. Tremolite, an amphibole present in chrysotile ores, also causes mesothelioma in both man and rat but only when the tremolite is in the fiber form. While it is not entirely certain that chrysotile does not cause mesothelioma in man, the approximately 1 percent tremolite contamination of some chrysotile ores is likely to be the cause of the rare mesotheliomata associated with such chrysotile usage. The evidence that chrysotile in industry has a minimal mesothelioma risk was summarized in testimony before the above Senate Committee. Briefly (a) women (generally not occupationally exposed to asbestos) show a stable mesothelioma incidence of 4/million women/year over some 20+ years; contrast the men who work with asbestos; (b) epidemiologic evidence from the U.S.A., S. Africa, U.K., Austria, Canada demonstrates at least a 15-fold mesothelioma risk gradient for crocidolite to chrysotile "only" exposure, (c) autopsy lung fiber burdens are consistent with this view; (d) peritoneal (abdominal) mesothelioma do not occur with chrysotile. These views are expressed in a World Health Organization report, International Agency for Research on Cancer report, Ontario Health

Commission Report, amendments to the British Asbestos Working Party Report by Dr. Acheson and in the Harvard Symposium; (e) studies of filter manufacturers confirm this view; and (f) studies of Austrian cement workers show mesotheliomata only with amphiboles.

Thus for the involuntary risk of mesothelioma, as opposed to lung cancer with its dominantly voluntary risk from tobacco, in place asbestos (>90 percent chrysotile) poses little risk, at the most 1/million students.

To conclude: First, as Ms. Fisher [EPA] has now pointed out, the risk to the general public for in place asbestos is small and removal may well not be the appropriate response. Second, it is imperative that the general public should be addressed by professional news media and physicians alike with some balanced education rather than staged displays and demagogic exercises with more beat than light.

Third, the current annual cost of abatement exceeds the annual budget of the entire National Institutes of Health!

Fourth, I submit for your consideration that action on asbestos in buildings be addressed as follows: (a) All asbestos/abatement workers be subject to OSHA regulation; (b) in place maintenance with limited abatement by properly trained and equipped workers; (c) public education; and (d) await report of the currently sitting Health Effects Institute-Environmental Public Health Committee (not research results) before further legislative action.

In short, "If it ain't broke don't fix it," but if you have to fix it do it right!

Mr. LUKEN. Mr. Reilly, I believe, has not given that statement yet. What date did you say he gave that?

Mr. GEE. This is published, sir, in a document with his letterhead on it, called the American Enterprise Institute, Environmental Policy Conference, the Vista Hotel, Washington, DC, June 12, 1990.

Mr. LUKEN. I'm sorry. I thought you said July.

Mr. GEE. I'm sorry.

Mr. LUKEN. Thank you very much. We'll be back—I think we may have two votes, so it may be more than 10 minutes.

[Brief recess.]

Mr. LUKEN. Thank you, Dr. Gee, for your testimony.

Dr. Levin, we have your testimony and we appreciate your informing the subcommittee in any way you think will be helpful.

STATEMENT OF STEPHEN M. LEVIN

Mr. LEVIN. Mr. Chairman, I want to than you for letting me come discuss these issues with you. My name is Dr. Stephen Levin. I'm medical director of the Mount Sinai Occupational Health Clinical Center. In the past decade or so, I have accumulated a considerable amount of clinical experience in the area of asbestos-related disease, since I began my training with Dr. Selikoff in 1979.

My current responsibilities include examining individual patients with a history of asbestos exposure, among other exposures, and designing and conducting clinical studies of groups of workers who have been exposed to asbestos in a variety of settings. In recent years, these have included insulators, pipefitters, plumbers, powerhouse workers, industrial electricians, railroad workers, and a number of other trades where asbestos exposure is part and parcel of their daily worklife. We have also studied in recent years school custodians. I'm going to want to address what our findings were in that group in just a moment.

It is also one of my responsibilities to design the analysis of the data that we collect during these studies and to develop reports that are based on these analyses.

Now, my clinical experience in the last 10 or so years has certainly given me an appreciation for the seriousness, from a public

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health point of view, of the consequences of exposure to asbestos. Among these building trades groups that we've looked at, we find very high rates of asbestos-related disease on x-rays—the findings known as asbestosis or scarring of the lung tissue, sometimes scarring of the lining of the lung, also known as pleura thickening or pleura scarring. We find these things at very high rates. When we're talking about sheetmetal workers or pipefitters, we're talking about rates of abnormality on x-rays that exceed 60 percent.

Now, asbestosis has even been found among firefighters with more than 20 years since they began their work, because they are exposed in buildings after fires when they do what is known as "overhaul" work, where they are looking for remaining smoldering fire. They are called upon to use rakes and picks on charred and burnt material and are exposed in this setting often to asbestos that is so badly charred that it's not recognizable. What we find among these worker groups who have a long history of exposure to asbestos, and a long time since they began their exposure to asbestos, is a predictor for what is going to happen to those workers who do similar work but who have less seniority on the job.

I think the schools custodian study that we recently have completed and reported on is relevant to the considerations today. That is a study of some 660 school custodians, who all are employed by the New York City Board of Education. We looked at those who had begun their exposure as school custodial workers 35 or more years earlier. Among that group, 39 percent showed evidence——

Mr. **Luken**. Dr. Levin, I don't usually interrupt, but if you're going to talk about that study, do we have anything on that study?

Mr. **Levin**. I can get you a copy.

Mr. **Luken**. Has the study been published? Has any summary been published?

Mr. **Levin**. What I can provide you is the report that we issued to the New York City Board of Education, which is now in the public domain, and I can make sure that you have a copy of that.

Mr. **Luken**. You did have a report to the——

Mr. **Levin**. Yes, issued to the New York City Board of Education. It's in the public domain. It's been widely distributed to all who have asked for it, and we can certainly provide you with that as well.

Mr. **Luken**. Thank you.

[The report was not received by time of publication.]

Mr. **Levin**. Now, we looked at a subgroup of school custodial workers who had had no exposure to asbestos outside the school environment that we could determine. Among that subgroup, who had school-related exposure to asbestos only, for those who were more than 35 years since they had begun their work in schools, 53 percent showed changes on x-rays consistent with prior asbestos exposure.

Now, trades that have been exposed to asbestos in this fashion, whose death experience has been studied, invariably show that the scarring lung disease that's found among them is an indication that these trades have been exposed to enough asbestos to raise their risk of lung cancer, cancer of the lining of the lung, or mesothelioma, as well as other malignancies that are associated with asbestos exposure. These trades, for the most part, have gotten their exposures during the 1950's and 1960's, when building construction in the United States markedly increased.

The postwar boom in construction activities was enormous, and that is when asbestos was put into buildings, and those buildings are now just 30 and 40 years old. They are now in somewhat deteriorating condition and they are now undergoing renovation and repair activities, in some cases demolition activities, and, as a consequence of those activities, there is opportunity for exposure to construction workers, building maintenance workers, and others who are in these buildings, because these materials are deteriorating.

A survey was done in New York City looking at commercial and public buildings. That survey demonstrated that 84 percent of the buildings evaluated contained asbestos products in poor or only fair condition. In other words, these materials had been damaged. Opportunities for disturbance of these materials which would generate dust with consequent exposure to anyone in that area of disturbance was identified quite clearly.

Not only the workers who disturb these materials directly are at risk for asbestos-related disease. Anyone who is present in an area where asbestos dust is generated is at some increased risk for asbestos-related disease. There is a dose response relationship, as Dr. Gee indicated. Where there is considerable exposure, there is a considerable increase in risk of disease. Where exposure is minimal, there will be a minimal increase in risk of disease.

Now, again, the issue that we are concerned about with regard to the occupants of buildings, schoolchildren, teachers, secretaries, other people who occupy buildings where asbestos surfaces may be exposed and where disturbance might occur—the issue is not scarring lung disease—the issue is, in fact, the increased risk of malignancy. School custodians certainly have scarring lung disease. We certainly expect that a mortality study done of school custodians will indicate that they are at increased risk of malignancy in proportion to their scarring lung disease. What we are concerned about when it comes to children and teachers in schools, other occupants of buildings where asbestos might be present, is, in fact, the cancer risk.

Now, in New York City we certainly have had a lot of attention to asbestos in the past year or so. You probably are aware that there were a series of steampipe ruptures involving various areas of Manhattan, and the newspapers covered these issues vigorously. We at Mount Sinai were asked to consult with the New York City Department of Health and the mayor's office to try and address the question of the risk posed by such exposures, both to the building occupants as well as to others who might have been present during those unfortunate episodes. Our role, principally, was to reassure the building occupants, the residents of those apartment buildings whose apartments had been plastered with asbestos-containing mud, that if they did not disturb that material, if they left the premises and were not further exposed, their actual risk of disease was vanishingly small, well below 1 in 10 million, from our simplest calculations. There was a lot more concern about the Con Edison workers, the utility workers who worked cleaning up and repairing those steampipes for 4 or 5 days without being told that this material contained asbestos. In certain respects, that bears on the question of maintenance personnel and custodial personnel who encounter these materials in buildings—and I'll get to that in just a moment.

The article in Science magazine, published in the January 19, 1990 issue, has had, I think, a particularly distressing effect on the public health perspective on the asbestos hazard. I did, in fact, hear Dr. Gee quoted on WCBS, the all news radio station in New York City, saying that most Americans don't have to worry about asbestos in place in buildings because, for the most part, they're exposed to the safe form of asbestos. He was speaking, as we know, about chrysotile, the type of fiber that is in most common use in the United States.

The main arguments of that Science article include that asbestos in place in schools and in other buildings really poses no risk to health, especially to the building occupants, since most of it is chrysotile and the air levels in schools are far below OSHA standards. I should point out that if we put personal sampling monitors on our school custodians, if we put personal sampling monitors on the pipefitters who show over a 69 percent rate of x-ray abnormality after 30 years on the job, they would fall far below the OSHA standard for permissible occupational exposure, far below, even though the rate of abnormality in the x-rays is quite persuasive that they've been exposed. Because the OSHA standard calls for a time-weighted average. It averages out the exposures over a 40-hour week.

What we are considering when we talk about maintenance personnel, custodial personnel, and anyone else occupying a building where asbestos might be disturbed, are not the general background levels of exposure only. They play a role in contributing toward risk of disease but, in fact, it's the peak exposures, when materials are disturbed, generating high fiber counts for hours at a time, when then settle back to a background level, that represent the greatest source of risk not only to those maintenance personnel and custodial workers but to anyone else in the building as well. To say that the background levels of asbestos fiber in buildings is 0.002 fibers per cubic centimeter ignores the question of the peak exposures that result from the disturbance of these materials.

We have good data that say that when relamping goes on through an asbestos-containing ceiling material, when wires are drawn through an air return plenum through a drop ceiling, levels of asbestos fibers in the air for several hours at a time can achieve a measurable concentration greater than 50 fibers per cubic centimeter and even as high as 100 fibers per cubic centimeter. These peak, brief, intense exposures represent a public health hazard that has been ignored by the writers of the Science article but represent, I think, the main exposures that the workers that we've looked at have experienced and has resulted in their disease.

Dr. Nicholson and others of our laboratory at Mount Sinai have responded to the Science article, and I won't cite in detail from that, but I want to make several points that are included in that article.

No. 1, chrysotile asbestos, the type that's being described as a safer form of asbestos, is a potent carcinogen to the lung and is as potent as any other fiber type that is in use. As a matter of fact, the single study demonstrating the highest risk of lung cancer per unit dose of asbestos has been found in a South Carolina textile plant where virtually the only fiber type in use was chrysotile asbestos. There was an attempt to say that it was a mineral oil applied to the fiber that was the real agent that raised the lung cancer risk, and a recent study by Dr. John Dement has shown that, in fact, mineral oil added to the fiber played no role whatsoever, that it was the fiber itself.

Now, studies also show a substantial risk of mesothelioma, cancer of the lining of the lung, from chrysotile exposure. Arguments that these malignancies result from the tremolite contaminant are entirely speculative, and the reason for that is that virtually all the asbestos that's been brought into the United States, chrysotile from Canada, has tremolite in it. Tremolite remains in the lung longer than chrysotile. We have no reason to believe that chrysotile, because it leaves the lung more rapidly than other fiber types, is any less cancer causing because it leaves earlier. Benzine, which causes leukemia in humans and animals, can't be found in the body even 4 or 5 days after the exposure has occurred. Yet, the leukemia risk is clearly elevated. The persistence of the fiber is not the only issue as regards its cancer-causing properties. The fact that all chrysotile brought into the country contains tremolite makes the issue somewhat a moot point. Whether it's the chrysotile alone or the tremolite that's causing the increase in cancer is not the real issue. We know that the Canadian miners develop mesothelioma. We know that railroad car mechanics exposed almost exclusively to chrysotile develop mesothelioma at high rates. This has been reported in the medical literature. There's a recent study done in Japan of individuals whose tissues were examined and found only to contain chrysotile asbestos, and these were mesothelioma victims. It's very persuasive that chrysotile is capable of causing mesothelioma.

Now, Dr. Gee indicated that mesothelioma is a rare form of cancer. That's very true in the general population. Nevertheless, it caused approximately 9 percent of all the deaths of the insulators followed by Dr. Silikoff over a period of two decades. So for the general population it is, indeed, a rare form of cancer; for asbestos-exposed workers, it is, unfortunately, not rare enough.

Risk to building occupants and users, even if we take the data provided by the authors of the Science article, are certainly lower than the risk for workers. But, nevertheless, if we take the fiber concentrations reported in buildings that were discussed in the Science article—which, by the way, the authors themselves would agree are at least tenfold less in concentration than virtually all the other studies of buildings that have been reported in the literature, and the methodology has been questioned—nevertheless, if we take that concentration that was reported and use the EPA's own risk estimates, we're talking about a risk to schoolchildren who spend 13 years in school of approximately one in a million, if we use their figures. That's a conservative estimate, to be sure, and only considers background levels of asbestos fiber and not the peak, repeated episodes that we just discussed.

We now regulate contaminants in drinking water which may be carcinogenic when they increase the risk of cancer one in a million. To regulate asbestos in school buildings which may pose a one in a million risk to schoolchildren is not outside the mainstream of regulatory activity in this country. So trying to trivialize that risk by saying it's too low to be considered necessary to regulate in this fashion I think flies in the face of actual regulatory practice.

Now, I am not of the opinion that all asbestos that's present in buildings has to be removed immediately. That's not my position. You want me to finish?

Mr. Luken. I think we're either going to ask you to finish or give Dr. Gee another 10 minutes.

Mr. Levin. All right. Let me just finish by saying this.

Asbestos that's in good condition, that doesn't release dust, that will not be disturbed in a fashion by maintenance or renovation activities or demolition, need not be removed. It has to be watched carefully. If there's going to be maintenance activity, that maintenance activity must be proceeded by removal in a fashion that is safe. We certainly have the technical ability to remove asbestos safely and to work with it in a fashion that doesn't expose the workers or any other occupants of the building to the risks from such a disturbance. But to monitor such materials is absolutely key if we're not going to remove them. The issue of whether they're removed immediately or at the time that renovation and demolition is ultimately going to occur is an economic decision and not principally a scientific question.

I do want to make this last point. Unless we pay attention to the history that we've accumulated with asbestos exposure and asbestos-related disease, we are certainly going to be harvesting the consequences of today's exposures in the next two or three decades, so that clinics like ours at Mount Sinai will be seeing victims of asbestos exposure who are developing these asbestos-related malignancies in the year 2010 and 2020 if we don't pay attention to the history that's been accumulated.

Thank you very much.

[The prepared statement of Stephen M. Levin follows:]

Prepared Statement of Stephen M. Levin, M.D., Mount Sinai School of Medicine

My name is Dr. Stephen Levin. I am medical director of the Mount Sinai-Irving J. Selikoff Occupational Health Center in New York City. I am a physician board certified in occupational medicine and have accumulated a considerable amount of clinical experience in the area of asbestos-related disease since I began my training with Dr. Selikoff in 1979.

My current responsibilities include examining individual workers and designing and conducting examinations of groups of workers who have been exposed to asbestos in a variety of settings. In recent years, these have included (but are not limited to) insulators, pipefitters, plumbers, utility (powerhouse) workers, industrial electricians, railroad employees, stationary firemen, turbine manufacturing workers, concrete and cement workers, carpenters, building maintenance workers and school custodians. It has also been my task to design the analysis of the data obtained during group examinations and to generate summary reports based on those analyses.

My clinical experience in the past 10 years has given me an appreciation of the seriousness of the public health consequences of exposure to asbestos. To cite just a few examples, the prevalence of asbestos-related scarring lung disease seen on chest x-rays among pipefitters who began in their trade 35 or more years before their examination in our center was 69 percent. Very nearly the same rate of asbestos-related x-ray abnormalities (>60 percent) was found among sheet metal workers with comparable seniority. Asbestos has even been found among firefighters with more than 20 years on the job, who have been exposed in damaged and demolished buildings in which the asbestos-containing materials were no longer recognizable. What has been found among these more senior workers can serve as a forecast of what might be expected for those with shorter time since they began employment in their respective trades.

In what may have particular relevance to the issue of asbestos-containing materials in place in public buildings, the rate of x-ray abnormally was 39 percent for custodians employed in the New York City Board of Education schools at least 35 years previously. For custodians who said they had no previous asbestos exposure apart from their work in schools, the rate of such abnormalities was somewhat higher.

It should be noted that the great majority of the trades in which we have found these high rates of disease have been exposed to asbestos products put in place in factories, ships and buildings during 1930–80. The boom in new building construction which followed World War II entailed the use of vast amounts of asbestos, as boiler and pipe insulation, as fireproofing for structural steel, as soundproofing for school auditoriums and gymnasiums, and in many other applications. Where the asbestos has remained intact, undisturbed and undamaged, little human exposure is likely to occur and very little disease can be expected. These buildings have aged, however, and the asbestos-containing materials in place have aged along with them, frequently sustaining damage and often becoming friable and capable of shedding fiber upon disturbance. Surveys in New York City of commercial and public buildings demonstrated that 84 percent contain asbestos products in poor or only fair condition. Disturbance of these materials in the course of maintenance, repair, renovation or demolition work in such buildings will often result in human exposure to airborne asbestos fiber released as a consequence of these activities. Not only are the workers who disturb asbestos themselves at increased risk for asbestos-related illness, but all those who are present at the time fiber is released or who work in areas which have been contaminated by the asbestos dust are at risk as well. Asbestos-related diseases exhibit a dose-response relationship. That is, where there is little exposure, there is little likelihood of disease; when there is more exposure, one can expect more disease.

The rates of scarring lung disease, asbestosis, visible on the chest x-rays of those we have studied is in itself a basis for serious concern, since the scarring process in many cases will compromise lung function and reduce the affected individual's capacity for physical effort. But a more serious concern from a public health perspective is the increased risk of asbestos-related cancer such workers incur as a consequence of the asbestos dust deposited in their lungs in the course of many repeated episodes of exposure. All construction trades which have been found to exhibit asbestos-related scarring lung disease and whose cancer death rates have been studied, have also experienced increased rates of lung cancer, mesothelioma (cancer of the lining of the lung or abdominal organs), and often cancers of other organs. We have certainly seen many such cases at Mount Sinai. Rates of cancer associated with asbestos exposure also follow dose-response relationships, and there is no available information which indicates the existence of a "threshold dose" below which there will be no increase in the risk of malignancy. Over the next few decades, unfortunately, we can expect to see increasing numbers of asbestos-related cancers emerging from the millions of construction and building maintenance workers exposed in the past few decades. This, in part, because fewer may die early from asbestosis, their exposures being lower than in the 1940's and 1950's, and now live long enough to develop the cancers which asbestos can cause.

To my knowledge, no one has conducted a study of cancer death rates among school custodians. Unless they respond to asbestos dust differently from other trades, one can expect their disease experience to show excesses of the same malignancies. The degree of excess among school custodians will depend on their actual cumulative exposure to asbestos.

In recent months, the issue of the hazards posed by asbestos have been the subject of considerable public attention, certainly in New York City. As many will recall, in late summer and early fall, steam and water pipes erupted or exploded with what seemed weekly regularity, sending showers of asbestos-containing mud and debris over surrounding areas. There was great concern, understandably, among the community residents, whom we were generally able to reassure that their exposures had been brief and represented a very low cumulative dose, and that their risk of asbestos-related illness was extremely small. We had greater concern for the utility workers who were involved for several days in the repair of the ruptured steampipe, surrounded by drying asbestos-containing mud, without the basic protection necessary to prevent the inhalation of the asbestos dust generated by their activities.

Even more recently, asbestos has been in the news as a result of the policy paper published by Mossman and her colleagues in the January 19, 1990, issue of Science magazine. It was particularly alarming, given the nature of my clinical work, to hear on one of the leading all-news radio stations, Dr. Gee, a coauthor of that paper, say that most Americans were exposed to the safe type of asbestos. By this he intended chrysotile, the type of asbestos fiber which represents approximately 95 percent of the total asbestos in place in the United States.

The main argument of the Science article is that the asbestos in place in schools and other buildings poses no risk to health, since most of it is chrysotile and air levels in schools are far below OSHA standards. I have attached a copy of a letter written by Drs. William J. Nicholson, John S. Harrington, Philip J. Landrigan, Edward Johnson, and James Melius, which responds critically to the paper by Mossman et al. and reviews some of the data, not discussed by the Mossman paper, which argues for a more prudent approach. The main points are these:

(1) Both human and animal data demonstrate that chrysotile asbestos is as potent a carcinogen to the lung as any other asbestos fiber type. One of the highest lung cancer rates per unit asbestos dose had been found among a population exposed almost exclusively to chrysotile.

(2) Studies show a substantial risk of mesothelioma from chrysotile exposure. Arguments that these malignancies result from the presence (1 percent) of tremolite, another type of asbestos fiber, in chrysotile as a contaminant are entirely speculative. Since chrysotile in commercial products virtually always contains tremolite, the point is in fact moot.

(3) The Mossman paper treats as inconsequential the exposures of custodial and maintenance workers, a problem to be resolved by "worker education."

(4) Risks to building occupants and users are lower than those of asbestos-exposed workers, but are similar quantitatively to other environmental risks currently regulated by government agencies.

I am not of the opinion that all asbestos must be removed immediately from all buildings in which it is present. If the material is not shedding fiber now and will not be disturbed by maintenance, repair, renovation, or foreseeable accident, a management plan to assure its continued good condition is certainly appropriate. If it won't be a source of human exposure to dust, it won't cause disease. If the asbestos is in poor condition and human contact with the dust can occur, the need for remediation is urgent and essential, because human illness can result. Similarly, where asbestos is subject to accidental disruption with the intermittent release of fiber, as is common with sprayed on applications, action must be taken to isolate or remove the material. For asbestos which is likely to be disturbed recurrently by the need for maintenance or repair, removal will be necessary ultimately, as it is when renovation or demolition occurs.

As a society, we have made a mistake (more an honest one for some than for others) in our widespread use of a material which has proved a serious danger to health. The point of departure from a public health perspective now should be how to prevent preventable illness and save as many lives as possible. Studies of workers (and their families) previously exposed to asbestos have taught us that past failures have led to a current public health tragedy. By doing what we can to reduce exposure among workers (and others) now, we can hope that the burden of asbestos-related illness and death will be lessened for the next generation.

Mr. LUKEN. Thank you, Dr. Levin.

Dr. Gee, you indicated, I believe, in your verbal testimony, that chrysotile is safer. Dr. Levin said, however, it's not safe. Would you agree with both of those statements?

Mr. GEE. No, not even by a trick of mind can I think that one. I would like to respond by addressing the issue I tried to open up. It depends upon the disease of which you speak. For asbestosis, there is little difference between the forms of asbestos that we commonly talk about.

Mr. LUKEN. In your answer—let me pose another one to incorporate in your answer. You enumerated asbestosis and lung cancer, and Dr. Levin described a third condition, I believe——

Mr. GEE. He did, and so did I.

Mr. Luken [continuing]. Of lung scarring; is that what you call it?

Mr. Levin. What I addressed was—asbestosis is the term given to scarring of the lung tissue itself. There is a pleura scarring, a scarring of the lining of the lung which is not traditionally given the term asbestosis but which is a scarring effect of asbestos. But we also spoke about mesothelioma, a cancer of the lining of the lung, very specific to asbestos, which is a form of malignancy.

Mr. Luken. Include that in your answer.

Mr. Gee. I would be happy to. I'm glad you asked this.

Let me run back to the original form. For asbestosis, we have never, nor do we say, that the fiber type is crucial. For lung cancer, we believe there are differences, but we do not believe them substantial enough to make decisions, at least in my mind—and there's some difference about this—for legislative purposes. They should be so regarded as a group, but recognizing my insistence, if I may, that lung cancer is a smoking related disease, even in asbestos workers.

The third point has to do with mesothelioma. We are of a somewhat different opinion on this point. I think, if I may say so, there's a little bit of flip-flopping going on. For instance, to say that 9 percent of insulation workers die of mesothelioma is tragically true, but it's also tragically true to point out that that's a very high load of amphiboles. Most insulation workers have access to chrysotile, but they also have a lot of amphiboles—in other words, the crocidolite and so on. That statistic is not a fair one to use. It's a heavily mixed exposure. You have to look at the relatively simple exposures.

I gave you the two cleanest examples because they are well-defined. I'm sorry, but I just have to defer to the scientific literature—and I think I sent to attorney Lamson copies of the relevant data which I presented before a Senate committee on this issue, which essentially show a striking gradient between chrysotile and other forms of asbestos with respect to mesothelioma.

The other point I would just like to make before coming back to your scarring issue is that mesothelioma is still rare in the chrysotile group, extremely rare, and that is still at concentrations way over the level that is so far engaged. I wouldn't want to start the fight on whether it is chrysotile or tremolite when, in fact, the mixture is both, except I would point out there are ample studies in other mining situations, such as talc and vermiculite and so on, in which tremolite is clearly the culprit for mesotheliomas.

Now, coming back to this issue of fibrosis, Dr. Levin has quite properly pointed out that asbestosis is scarring of the lung and pleura disease is a separate entity. I would respectfully dissent from his view that scarring of the lining membrane, per se, has a greatly significant prognostic import. In other words, I don't think you can predict lung cancers from that, and I personally believe, though he may not agree, that that statement is valid and there is ample literature.

Second, I'm a little edgy about reports that end up in the New York—that come out in a nonpeer review journal. Maybe it's been already submitted and accepted. If it has, this comment is no longer relevant.

Mr. Levin. It's been submitted and is under review.

Mr. Gee. And that journal being?

Mr. Levin. The American Journal of Industrial Medicine.

Mr. Gee. That journal is, of course, edited largely by your own group.

Mr. Luken. I'm sorry. I didn't hear that, Dr. Gee.

Mr. Gee. That printed journal is largely edited by your own group.

Mr. Levin. It received an award for a scientific journal last year in national competition.

Mr. Gee. Okay. Let's leave it at that.

Mr. Luken. From whom?

Mr. Levin. I think a national publications review committee. It's a very well-respected journal and certainly incorporates the scientific production from others outside of our own laboratory, even some from Yale as I recall.

Mr. Gee. Oh, it would, and it does. It does have some good stuff in it. But I think, if I were in your position, I would send it to a journal that would give you an independent review, precisely because of the concerns that this raises. Anyway, I'm just pointing it out.

The issue here is an important one. Aside from the prognostic value, I have actually seen a copy of your report and, in fact, have it with me. Maybe I could ask you a couple of questions——

Mr. Luken. Which report now are we talking about?

Mr. Gee. This is the one I believe you sent to New York, which you said was in the public domain.

Mr. Levin. Yes, if we're talking about the New York City school custodian report.

Mr. Luken. Is there a possibility that someone has it on hand today?

Mr. Gee. Yes.

Mr. Luken. In your hand?

Mr. Gee. No, but I can get it. I can get it before the end of the hearing, sir. I think it can. I have certainly seen it, but I'm not absolutely certain I brought it with me.

Mr. Luken. I'm inclined to agree with Dr. Levin, from what I've heard about it. It has been commented upon generally, but it is elusive as far as tying it down.

Mr. Gee. Well, he can speak to that.

I believe, if I read it correctly, what you're calling lung scarring is one zero and zero one, and I'll explain that——

Mr. Levin. That's absolutely incorrect.

Mr. Gee. All right. Could you tell me those numbers?

Mr. Levin. Our criterion for abnormality, since we followed the guidelines of the ILO's classification scheme, is one zero or greater. Any film read as 0/1 is considered a normal x-ray.

Mr. Luken. I think I will——

Mr. Levin. This is a technical discussion and I'm sorry we're——

Mr. Luken. I think I will have to rule that any further questions be directed to the Chair.

Mr. Gee. I beg your pardon, your Honor.

Mr. Luken. I said any further. There's no reason to——

Mr. Gee. Okay.

Mr. **Luken**. I can see where we may get a little bit too cantankerous, even.

Mr. **Gee**. Well, I thought I was being polite.

Mr. **Luken**. You were, up to that point. But I can see where it may lead.

Mr. **Gee**. Yes. There's 80 miles difference.

All right. He has answered the question. That means that I would attach somewhat more weight to it than I would on the basis of what I think I've seen. I'm just a little edgy about solely this report as it now stands, as far as I can see it. I need to see more of those films to have a personal opinion on it. But a lot of the numbers are this one zero.

If I might explain, the one zero simply says I look at this x-ray and I think it's just abnormal, and that's what one means, and zero, I look at it again, and I'm not so sure. You turn it the other way around and you say well, I think it's normal but I'm not quite sure. There's a lot of that kind of reading involved. Dr. Levin should speak to that. I can't. I haven't seen his x-rays and he has.

The second point I would like to make is I think we need more verification of this in terms of quantity. Third, I basically agree with him, nonetheless, that there is a risk to workers in this situation. I believe he specified this. What I'm concerned about is blowing this risk up into a situation in which we're dealing with the general residents of a building.

Mr. **Luken**. General what?

Mr. **Gee**. The general residents in the building, as opposed to workers.

I should say that one of the bills that I had the pleasure of sponsoring, or at least cosponsoring, have been a number of acts in the State of Connecticut, one of which involved the right to know. It mean that asbestos workers were certainly supposed to know they were handling it. Once you know, you're in a lot better position than otherwise. So we share some of these concerns. So, although it may look as we're being impolite, there is actually a good deal of common ground in terms of worker protection.

Mr. **Luken**. I believe Dr. Levin said that Canadian miners who are exposed only to the chrysotile contact mesothelioma. Are you aware?

Mr. **Gee**. I am, indeed, aware of that.

Mr. **Luken**. What comment would you have on that statement?

Mr. **Gee**. I think there are three comments to make. The first one is that the number that was actually produced in the letter to Science, that responded to our article, I believe used the number 67. I am informed by Canadians—and I have letters, if you wish—that that number is not correct. It's at least half that.

Second, I am quite prepared to believe there are such mesotheliomas aside from the observations because there is tremolite there.

Mr. **Luken**. You would agree that they were exposed only to the——

Mr. **Gee**. Well, it's a chrysotile mixture, which includes——

Mr. **Luken**. There is a mixture.

Mr. **Gee**. There is 1 percent tremolite in much of that.

The point I really want to make, though, is here is almost the world's biggest hole, with the world's biggest asbestos mine, for almost the world's longest time, and you can come up with 30 mesotheliomas. Are you going to extrapolate that to a set of buildings with infinitely less fiber count levels and make some argument from it? I'm a little perplexed why, even accepting the corrected numbers, which may be argued about, that that becomes such a strong point.

In any event, the way to resolve that issue is to determine to what extend the tremolite is airborne in buildings, and that needs to be done.

Mr. **Luken**. I believe you made the comment that mesothelioma is rare in a chrysotile environment?

Mr. **Gee**. I did make that comment and I think it's correct.

Mr. **Luken**. Do you want to discuss any of these points, Dr. Levin?

Mr. **Levin**. A couple of those points, yes.

No. 1, the presence of the tremolite at 1 percent in Canadian chrysotile that's produced for commercial purposes may or may not be playing a role in the development of mesotheliomas that are seen. I do think it is something of a moot point to the extent that all the chrysotile contains tremolite. We're not going to be able to know whether the chrysotile acting alone is, in fact, contributing to the risk of mesothelioma or not. There are some recent Japanese studies, both animal data as well as human studies, which have shown that some chrysotile coming from Canada is tremolite-free and yet mesotheliomas have been seen. Certainly experimental work with standard chrysotile specimens which have been looked for, mineralogically, for the presence of tremolite and it has not been found to be present. Those samples, when introduced by inhalation into laboratory animals, definitely induce mesotheliomas at the same rate as any other fiber type—somewhat more potent than others.

Let's talk for a moment, though, about the use of chrysotile commercially. When one mines chrysotile, the fibers remain bundled into relatively thick bundles. When the material is then processed and used in place as insulation material in other settings, those thicker bundles are fragmented into tinier fibrils. This is well recognized and it can be demonstrated with electron microscopy. The use of these materials in buildings, the disturbance of materials that are already in place, in fact, are much more likely to fragment the chrysotile into a dimension, into physical properties, that make it much more cancer-producing than the original mined ore. This is again something that is fairly widely accepted as to what happens to chrysotile when it is in use.

There is very little debate over whether chrysotile can induce lung cancer. To say that the lung cancer burden is virtually all attributable to smoking I think begs the question. Asbestos exposure, in and of itself, raises the risk of lung cancer approximately five-fold in the insulators that were studied, and that was a limited population of nonsmokers because most blue collar workers smoked. We have very few data from human populations to answer the question: how much increase in lung cancer occurs from asbestos alone independent of smoking? But the several studies that have been done show that asbestos, in and of itself, without cigarette smoking, can markedly increase the risk of lung cancer approximately fivefold in other studies as well.

The laboratory animals that have been exposed by inhalation to all forms of asbestos develop a markedly increased rate of lung cancer, and we don't have any information to indicate that they're smokers.

I think to exonerate chrysotile as a public health hazard, which is what I think the Science article goes toward, sows confusion among those who have to make decisions about what to do in buildings today. We see evidence of that already. The consequence of the quotation from Dr. Gee in the news, and the way the media picked up the Science article's implications, gave pause to building owners, gave pause to school administrations—do we really have to worry about this material at all.

I can tell you that the custodians in New York City still have not received a level of training that would enable them to recognize asbestos in place and to work with this material safely so that they protect their own health and protect the health of the schoolchildren and the teachers in those buildings. We know this because the head of the custodian union's health and safety department said as much only several days ago. They still have not implemented the right-to-know law so that the workers are informed about what's in place and how to work with it.

To say that we know how to protect workers, we know the consequence of exposure to workers, we know how to protect them, I think very severely begs the question; that is, how can we develop the kind of training programs that will, in fact, protect them in building after building, where small renovation jobs are done, small repair jobs are done.

We do have some difficulty monitoring abatement activities. We don't do such a wonderful job of that. But at least those jobs have to be registered with local governments. They have to be monitored by an onsite inspector. The small job with the disturbance of materials in place that occurs in building after building, school after school, are not monitored. The repairs of pipes, the repairs of boilers, the repairs of lighting fixtures, are not monitored by any inspector. We know that our custodians are not being trained adequately to protect themselves and protect the children. Therefore, I have very grave concern about the public health consequences of just leaving these materials alone.

Mr. Luken. We've all got concern. What do we do about it? What are we doing about it under AHERA? Is there any adequate response under AHERA at the present time?

Mr. Levin. Adequate from a public health point of view? I would say not yet. Does it go in the direction of an adequate response? I think we are ahead of where we were before the AHERA act was passed.

Mr. Luken. Well, what about the specific response that's going on out there? Do you believe—and I believe you said not—that all asbestos should be removed?

Mr. Levin. Not necessarily. No, I believe asbestos need not be removed if it's in good condition——

Mr. Luken. If it is not removed, then aren't those workers inevitably going to be exposed somewhere down the line?

Mr. LEVIN. If renovation or repair or demolition is going to occur, there's the potential for exposure, and before those activities can occur.

Mr. LUKEN. But even before repair. What about just normal maintenance repair?

Mr. LEVIN. If normal maintenance repair is going to disturb the material in place, it's going to have to be removed; that's absolutely correct.

Mr. LUKEN. You say it's not monitored, so the exposure is going to take place if it's not removed, isn't it?

Mr. LEVIN. You're forcing me into my true position, which is that since all buildings have a lifespan, they are not eternally existent. The question of whether asbestos is intact or to be disturbed is a dynamic situation and not a static condition. In fact, ultimately all asbestos is going to have to be removed.

Mr. LUKEN. That's what I said, yes. Go ahead.

Mr. LEVIN. Ultimately, all asbestos is going to have to be removed, because there ultimately will have to be repair, renovation or demolition.

Mr. LUKEN. Now you're getting further away from the question. Come back a ways. What are we going to do now?

Mr. LEVIN. At this point, asbestos that's in place has to be surveyed, has to be assessed for its current condition, and where there is opportunity for any human exposure to dust, it's going to have to be removed or enclosed in a sufficient enclosure so that no disturbance can occur.

Mr. LUKEN. As long as we leave it there, workers are going to be exposed.

Mr. LEVIN. There's the potential for that.

Mr. LUKEN. The workers are going to be exposed down the line, if the building is destroyed tomorrow.

Mr. LEVIN. Before it's destroyed, hopefully someone will remove the asbestos so that it doesn't represent a source of contamination for those near the building or at some distance.

Mr. LUKEN. There doesn't seem to be any satisfactory solution, or at least not one that covers 100 percent or anywhere near 100 percent protection. What if we remove it? Aren't we then stirring it up?

Mr. LEVIN. There's no question that we're stirring it up.

New Jersey has established a track record on this and has been looking at the results of abatement projects that have been carried out. The great majority of those projects have, in fact, been done safely the first time around, have left asbestos levels in schools below those that were present prior to the time that the abatement occurred. It is certainly possible to do this work and——

Mr. LUKEN. Does it make any sense to only monitor after you take it out?

Mr. LEVIN. After you take it out?

Mr. LUKEN. We don't monitor beforehand, do we, or if we do, we don't use it as a criterion for whether or not we take it out.

Mr. LEVIN. And properly should not use that as a criterion because it's exactly the occasional——

Mr. **Luken**. Well, that's what you say, but you only have your argument from authority to back that up. What do you back it up with other than you say so?

Mr. **Levin**. Which argument is that, sir?

Mr. **Luken**. The argument you just made, that we shouldn't take it out.

Mr. **Levin**. No, no. You recall that you forced me into my true position.

Mr. **Luken**. Only by bringing out the facts.

Mr. **Levin**. Yes. You see, in fact——

Mr. **Luken**. I didn't slant the facts any, did I?

Mr. **Levin**. No. In fact, what I think building owners are doing ultimately is voting with their feet on this matter. Most of them recognize that their buildings will ultimately require renovation, repair activities, and that these materials will be disturbed, and are saying it costs me less to remove the material now than to establish an operations and maintenance program which ultimately down the road will only result in removal of these materials and I'm going to do it now. I think that has been the practice in the majority of circumstances.

But, as I said, it's predominantly an economic decision. There are ways to enclose asbestos, not to encapsulate it but to enclose it, so that there's no human contact, at least for a period of time. That is an interim measure only because, in fact, these buildings have a finite lifespan and ultimately the material will have to be removed.

Mr. **Luken**. All right. We're going to have to move along.

But, enclose and encapsulate, words of art, huh?

Mr. **Levin**. Well, encapsulate usually means you're spraying a sealing material——

Mr. **Luken**. You know, we're getting technical. I hate for somebody to say it "usually" means.

Mr. **Levin**. Okay. Well, in fact, encapsulation means——

Mr. **Luken**. Obviously, they're not words of art if it only is "usually".

Mr. **Levin**. I'll be more precise.

Encapsulation means sealing off the exposed asbestos surface with a material that penetrates into the asbestos surface, trying to retain fiber from shedding.

Mr. **Luken**. There's a difference in degree, to enclose or encapsulate.

Mr. **Levin**. Enclosure usually means building an actual, physical enclosure around the asbestos itself, which, in fact, can prevent contact with that material, where sealant materials don't work so well.

Mr. **Luken**. It's temporary?

Mr. **Levin**. It's temporary to the extent that ultimately those enclosures will have to be broken down if maintenance activities or demolition is required.

Mr. **Luken**. We are going to have to move along to the other panel, but, Dr. Gee, I wonder if there's anything that's been said in the last couple of minutes that you would like to shed any light on?

Mr. **Gee**. Very quickly. I think your questions are very pertinent and both of us would have trouble writing good regulations. On the

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one occasion where I tried to help the DEP in Connecticut write regulations, I realize how hard this is.

Second, I would like to stress that it is entirely proper and easy to get people to take seriously the training of workers. If that is done, then I would suggest to you that the airborne data is crucial.

Mr. **Luken**. I don't want to insult anybody, but I've never tried to train a janitor——

Mr. **Gee**. I'm not trying to train a janitor. I'm trying to tell him how to deal with asbestos.

Mr. **Luken**. You say train workers, don't you? Aren't you talking about janitors?

Mr. **Gee**. Well, I think I know what you're saying, but I'm trying to say and avoid what I think you may be implying, that you're training him to deal with asbestos, and if you can't, you get somebody else to do it. Janitors aren't really the people. It's mainly people involved with structural building changes, things like boilers and pipes and insulation and things above the ceiling, rather than just the janitor, quite frankly.

Mr. **Luken**. Well, if we're talking about schools, we must be talking about a lot of janitors.

Mr. **Gee**. Yes, but I'm not sure——

Mr. **Luken**. That's what we're talking about here.

Mr. **Gee**. Well, I'm not sure that the janitors is really where the risk is. I think it's people with more specialized skills.

Mr. **Luken**. Well, we've been talking about janitors and maintenance people being those at risk.

Mr. **Gee**. I don't want to say never.

Mr. **Luken**. You can't say that they're not.

Mr. **Gee**. I think they're a very small risk, sir.

Mr. **Luken**. I understand your answer.

Do you want to try the last word?

Mr. **Levin**. If I'm granted the opportunity.

I think the point with regard to janitors is that they are very often the personnel who clean up——

Mr. **Luken**. Incidentally, I don't use janitor in a denigrating sense, in that a janitor is a person of low skill. I am bringing it up to indicate a person who has variegated duties and is dealing in situations, a kaleidoscope of situations, where the training manual is going to be challenging to any of us rocket scientists or whatever we are here. I don't think any of us could do the job any better.

But it seems to me, putting myself in the position of those people who come in with the spacesuits and all of the equipment and so on, they can be trained because they're doing the same thing over and over again. The janitor is doing a thousand different things in a thousand different circumstances. The rules are going to be, first of all, just like the problem we have all the time in passing laws, laws that are universal that apply to a particular situation. A janitor is going to have a hell of a time figuring out how to apply those rules to the variable situations that he or she runs into.

Mr. **Levin**. You said eloquently what I was about to say. I think the janitorial staff in any building, in fact, is at risk because of cleanup after the maintenance activities of other workers. Their tasks are very varied and they will not be trained to be genuine asbestos specialists, that their exposures will be ongoing, unfortunately, and will yield disease for decades to come unless we protect against those exposures now.

Mr. LUKEN. Well, limitations of time prohibit us from going further into it. I would enjoy going into it for a much longer time, but I'm not sure much of the audience would enjoy it. You have been very helpful and very patient, very forthcoming, both of you. I can say that without any caveat at all. If there's anything further you want to submit, the record will be held open for 30 days.

I thank you, Dr. Gee, and Dr. Levin.

Mr. GEE. Thank you for allowing us to come.

Mr. LEVIN. Thank you.

Mr. LUKEN. The rest of the witnesses, please come forward. Anybody who thinks they qualify as a witness, please come forward.

All of you, Ms. West, Mr. Billirakis, Mr. August, Mr. Veith and Ms. Herber, we have your testimony which, without objection, will be received into the record of the subcommittee. Each of you please try to adhere to the 5 minute rule in explaining your position. We will start off with you in the center, Ms. Herber.

STATEMENTS OF KATHARINE L. HERBER, COUNSEL, NATIONAL SCHOOL BOARDS ASSOCIATION; MICHAEL BILLIRAKIS, VICE PRESIDENT, OHIO EDUCATION ASSOCIATION, ON BEHALF OF THE NATIONAL EDUCATION ASSOCIATION, ACCOMPANIED BY JOEL PACKER, LEGISLATIVE SPECIALIST, NEA; JAMES D. AUGUST, OCCUPATIONAL HEALTH AND SAFETY SPECIALIST, AMERICAN FEDERATION OF STATE, COUNTY AND MUNICIPAL EMPLOYEES; SARAH WEST, VIRGINIA PTA STATE LEGISLATIVE CHAIR, ON BEHALF OF THE NATIONAL PARENT-TEACHER ASSOCIATION; AND C. GREGORY VEITH, MANAGER, FACILITIES SERVICES AND CONSTRUCTION, ARCHDIOCESE OF CHICAGO, ON BEHALF OF THE COUNCIL FOR AMERICAN PRIVATE EDUCATION

Ms. HERBER. Thank you, Mr. Chairman, for inviting us to testify here today. The National School Boards Association is very pleased to be here.

Mr. LUKEN. Yes. Introduce yourself, if you don't mind, who you represent, and whatever you want to say that's pertinent.

Ms. HERBER. Okay. I'm Kate Herber, the legislative counsel at the National School Boards Association. We represent approximately 95,000 local school board members who are responsible for the governance and operation of the local public school systems.

There are approximately 33,000 local education agencies, public and private, in the United States which contain no less than 96,000 school buildings. Following passage of AHERA, each LEA was required to inspect each school building under its jurisdiction for the presence of asbestos, develop a management plan for each school building which was found to contain asbestos materials, and implement the management plan no later than July 9, 1989.

The Federal law requires that LEA's use EPA accredited inspectors, laboratories, management planners and asbestos contractors. State law generally requires that these individuals be licensed, bonded and insured.

EPA originally estimated the total cost of LEA compliance with AHERA to be approximately $3 billion. Although public LEA's consistently maintain that the EPA estimate was understated, data in support of that position was unavailable until 1989, when NSBA conducted a survey of 671 of the 17,000 local public schools. The NSBA survey results revealed that by April 1 of this year, 671 public LEA's would have expended nearly one-sixth, over $464 million, of the total amount EPA estimated AHERA compliance would cost all 33,000 public and private LEA's over the lifetime of asbestos in school buildings. I might add that that figure is only the cost of inspections, management plans, and any encapsulation, containment or abatement work and does not include the cost of replacing asbestos that was used as an insulator.

Based on these initial survey results, NSBA believes that it is not unreasonable to assume that the actual cost of public LEA's only compliance with AHERA will exceed $6 billion.

Despite the significant cost of AHERA compliance, the only Federal money available to LEA's is that available to the Asbestos School Hazard Abatement Act of 1984. ASHAA, as you know, instituted a program under which both public and private LEA's may apply for a loan and/or grant to supplement the cost of activities undertaken in response to the presence of asbestos in school buildings. During the period 1985 through 1988, 1,819 LEA's submitted loan and/or grant applications to EPA covering 12,706 asbestos abatement projects, totaling $929 million. Of those applications, EPA awarded $157 million, or less than 17 percent of the total costs requested, to only 642 LEA's.

In 1986, AHERA amended ASHAA to provide for the establishment of an asbestos trust fund to provide additional financial resources to needy schools. The amendment authorized Congress to appropriate $25 million a year in fiscal years 1987 through 1990 to the trust fund and required that all loan repayments would be paid into that account. However, Congress has never appropriated any money to the trust fund and, although loan repayments have resulted in a trust fund balance of $8 million, such funds have never been made available to needy schools.

Following enactment of AHERA, LEA's were forced to immediately undertake long-term, complex and expensive compliance activities which were in addition to and not in substitution for any other activity LEA's are required by law to undertake or services they are required by law to provide. In most instances, the absence of adequate State or Federal financial assistance has required these agencies to cut education programming in order to pay the cost of AHERA compliance. Moreover, many LEA's anticipate that further reductions in basic education services will be required to meet the cost of new rules governing reroofing and roofing repair projects.

For instance, the Broward County, FL, School Board originally estimated the total cost of their asbestos program to be $24 million. Nevertheless, in the wake of these new rules governing roofing projects, they have been advised that they can expect the actual cost of their program to increase from between $10 to $20 million over the next several years.

School districts across the country are facing inordinate demands on limited taxpayer resources. In large measure, many of those demands are the result of Federal laws which impose significant new and costly requirements on schools—unrelated, I might add, to education—but which provide no funds for implementation, such as the financial responsibility requirements for leaking underground petroleum storage tanks or hazardous waste disposal. In addition, other Federal laws may abrogate the ability of local public school districts to impose and collect taxes. For instance, the Financial Institutions Recovery and Reform Act which, with respect to property held by the FDIC or RTC, restricts the taxing authority of local school districts. The State of Texas currently expects to lose $200 million in real property taxes to fund education in fiscal year 1990–91.

School board members want to assure that students, teachers and other building occupants enjoy a safe and hazard-free environment. However, due to a lack of Federal financial assistance, school board members are in the unenviable position of being forced to provide that safe environment at the expense of educating our students. Therefore, we request that Congress recognize both its unmet and continuing obligation by reauthorization of ASHAA to increase the loan and grant program to $1 billion—don't faint when I say that—to immediately direct that amounts held in the trust fund account be made available to needy LEA's, and provide that in future years the trust fund account balance is available to needy LEA's on an annual basis.

I know that time is short here today and, therefore, I will close by thanking you for having us testify. We did raise other issues in our written testimony, but I will let that stand on its own merits.

Thank you very much.

[The prepared statement and attachment of Ms. Herber follow:]

Prepared Statement of Katharine L. Herber, Legislative Council, National School Boards Association

The National School Boards Association [NSBA], is pleased to have this opportunity to testify before the House Subcommittee on Transportation and Hazardous Materials on implementation of the asbestos abatement program in schools and reauthorization of the Asbestos School Hazard Abatement Act of 1984.

NSBA is the only major education organization representing the over 95,000 locally elected and appointed school board members across the nation. Currently marking its fiftieth year of service, NSBA is a federation of State school board associations with direct local school board affiliates, constituted to strengthen local lay control of education and to work for improvement of education. Nationwide, local school board members are politically accountable to their constituents for the prudent operation and fiscal management of the local school districts they serve. As government officials, school board members are uniquely positioned to judge Federal legislative programs purely from the standpoint of public education, without consideration to their personal professional interest.

There are approximately 33,000 local education agencies [LEA's] in the United States which contain no less than 96,000 school buildings. Following passage of the Asbestos Hazard Emergency Response Act [AHERA], each LEA was required to inspect each school building under its jurisdiction for the presence of asbestos, develop a management plan for each school building which was found to contain asbestos containing materials, and implement the management plan no later than July 9, 1989. Moreover, each step in the AHERA process requires that LEA's use inspectors, management planners and asbestos workers who are accredited by the Environmental Protection Agency [EPA].

EPA originally estimated the total cost of LEA compliance with AHERA to be approximately $3 billion. Although public school districts consistently maintained that the EPA estimate was understated, data in support of that position was unavailable until 1989, when NSBA conducted a survey of 671 of the 17,000 public LEA's. The

NSBA survey results revealed that by April 1, 1990, 671 public LEA's would have expended nearly one-sixth (over $464 million) of the total amount EPA estimated AHERA compliance would cost all LEA's over the lifetime of asbestos in school buildings. Based on the initial survey results, NSBA believes that it is not unreasonable to assume that the actual cost of public school district (only) compliance with AHERA will exceed $6 billion over the lifetime of asbestos in school buildings.

Despite the significant cost of AHERA compliance, the only Federal money available to LEA's, who must meet the stringent Federal standards, is that available through the Asbestos School Hazard Abatement Act of 1984 [ASHAA]. ASHAA instituted a program under which both public and private local education agencies [LEA's] may apply for a loan and/or grant to supplement the cost of activities undertaken in response to the presence of asbestos in school buildings. During the period 1985 through 1988, 1,819 LEA's submitted loan and/or grant applications to the Environmental Protection Agency [EPA] covering 12,706 asbestos abatement projects totalling $929 million. Of those applications, EPA awarded $157 million (or 17 percent of the total costs requested) to 642 LEA's.

In 1986, the Asbestos Hazard Emergency Response Act [AHERA] amended ASHAA to provide for the establishment of an asbestos trust fund to provide additional financial resources to needy schools. The amendment authorized Congress to appropriate $25 million a year in fiscal years 1987 through 1990 to the Trust Fund and required that all loan repayments would be paid into the Trust Fund account. However, Congress has never appropriated any money to the Trust Fund. Moreover, although loan repayments have resulted in a Trust Fund balance of approximately $8 million (A/O June 1989), such funds have not been made available to needy schools.

Following enactment of AHERA, LEA's were forced to immediately undertake complex and expensive compliance activities which were in addition to, and not in substitution for, any other activity LEA's are required by law to undertake (or services LEA's are required by law to provide). In most instances, the absence of adequate State or Federal financial assistance has required LEA's to cut education programming in order to pay the cost of AHERA compliance. Moreover, many LEA's anticipate that further reductions in basic education services will be required to meet the cost of new rules governing reroofing and roofing repair projects.

As a result of AHERA, school districts across the country are facing inordinate demands on limited financial resources. In large measure, many of those demands are the result of Federal laws which impose significant new requirements on LEA's, but which provide no funds for implementation (i.e., financial responsibility requirements for leaking underground petroleum storage tanks or Hazardous waste disposal). School board members want to assure that our students and teachers enjoy a safe and hazard-free environment. However, due to a lack of Federal funding, school board members are in the unenviable position of being forced to provide that safe environment at the expense of education.

When ASHAA was enacted into law, the projected cost of the asbestos in schools program was $3 billion. Since that time, NSBA has learned that the cost of compliance for public LEA's alone is at least double that amount. Nevertheless, the ASHAA loan and grant program has never received full funding and monies held in the asbestos trust fund have never been released. Therefore, NSBA urges Congress to recognize both its unmet and continuing obligation to LEA's by enactment of legislation to: (1) reauthorize the ASHAA loan and grant program at $1 billion; (2) immediately direct that amounts held in the Trust Fund account be made available to needy school districts; and (3) provide that in future years the Trust Fund account balance is available to needy school districts on an annual basis.

In September, the Inspector General for Audit released a Report of Audit on the Asbestos School Hazard Abatement Act (Audit Report No. E1E18-03-0161-9100486, September 20, 1989). NSBA urges Congress to include provisions to implement certain recommendations contained in the report (see Attachment) in the bill to reauthorize ASHAA. Specifically, NSBA urges Congress to include in a final bill provisions which direct EPA to: (1) solicit and utilize applications on an annual basis, notwithstanding the fact that the Agency has not sought funding of the ASHAA loan and grant program in its budget request; (2) require that repayments for reimbursement projects commence no later than 6 months following the final award payment to the LEA; and 3) require that repayments for work-in-progress [WIP] projects commence no later than 6 months from the date work is completed and 90 percent of the award has been paid to the LEA.

NSBA believes that inclusion of these provisions in a final bill is necessary to ensure that LEA's do not encounter unnecessary delays in receiving ASHAA funding, and to assure that the maximum amount of Federal resources are available to needy schools.

Over the past year, the news media has published reports which suggest that the type of asbestos commonly found in school buildings does not pose a risk to human health. In many instances these reports are attributable to publication of a recent study undertaken by a group of scientists. Several members of the group have served as expert witnesses for defendant asbestos manufacturers in cases arising out of the presence of asbestos in buildings. In response to these reports (and in the absence of a new study which contradicts the study on which such reports are based) local taxpayers have begun to question the wisdom and necessity of their school district spending millions of dollars to comply with AHERA.

NSBA believes that Congress must assume a leadership role in responding to the confusion and alarm generated by the recent study by authorizing a grant of $500,000 to fund an objective international study of the asbestos health hazard. In that regard, to preserve the integrity and reliability of the Congressionally authorized study, NSBA believes that no individual should be allowed to participate in the study if (s)he has at any time appeared as an expert witness for either a plaintiff or a defendant in a case arising out of the presence of asbestos in buildings.

Since enactment of AHERA, the EPA Office of Toxic Substances has provided an invaluable service to LEA's through the development of numerous publications designed to apprise building occupants of the health hazards of asbestos and LEA's of the many activities they must undertake to comply with AHERA. EPA professional staff in both Washington, D.C. and EPA regional offices have been consistent in their willingness to assist LEA compliance with AHERA through participation in seminars and conferences for school board members, teachers, parents, and facility managers. Moreover, many of the activities undertaken by the Office of Toxic Substances have served as models to other offices within EPA (i.e., Office of Drinking Water) as they attempt to implement environmental laws which apply to LEA's and other units of local government.

NSBA believes that the success of school district compliance with AHERA will, in large measure, depend on the continued availability of assistance from the Office of Toxic Substances. Because that is so, NSBA urges that reauthorization of ASHAA include funding adequate to ensure that the current level of EPA assistance to LEA's is continued without interruption.

EPA REPORT OF AUDIT ON THE ASBESTOS SCHOOL HAZARD ABATEMENT ACT (ASHAA), AUDIT REPORT NO. E1E18-03-0161-9100486, SEPTEMBER 20, 1989

FINDINGS AND RECOMMENDATIONS

1. EPA NEEDS TO AWARD ASHAA FUNDS MORE EFFECTIVELY

EPA's implementation of the application process in the ASHAA program has decreased the effective utilization of over $34 million in ASHAA funds. During fiscal years 1987 and 1988, EPA did not allow sufficient time to solicit new applications prior to awarding ASHAA funds. Instead, EPA utilized applications on hand for projects which were not significant enough to receive funding in the prior year. Many of these projects were boiler rooms with minor damage instead of classrooms with major damage and significantly more exposure hours. EPA could have used the funds more effectively if awards were made using data in the new applications. By funding new applications, we estimate that an additional 2 million exposure hours would have been abated on projects with major damage.

The change in the application process was made necessary by EPA not allowing sufficient time to solicit new applications within the Congressional deadlines for awarding the funds. The intent of the Congressional deadlines was to ensure funds are awarded timely so that LEA's can begin work in the summer months. Congress has allowed ample time for new applications in the deadlines provided EPA initiates the award cycle in a timely manner. However, EPA has routinely resisted the ASHAA program by not seeking funding for this program in its budget request to Congress. The Agency's policy not to participate in the ASHAA program has in the past resulted in Congress approving a joint resolution forcing the Agency to spend the ASHAA funds. This discord between the Agency and Congress concerning the continuance of this program has delayed the release of ASHAA funds until well into the fiscal year. To compensate for the funding delays, EPA staff had to expedite the application process by using previous year applications to award ASHAA funds. These old applications contained many low priority projects, and in part, because of the low priority, were not funded in the previous year. The funding of old applications by EPA was not the most effective use of ASHAA funds.

The delay in receiving ASHAA funding, combined with the Congressional deadlines, makes it extremely difficult for the Hazard Abatement Assistance Branch [HAAB] to properly administer the ASHAA program. HAAB personnel cannot ensure the funds are used most effectively when the funds do not become available to the Agency until 1 month before the Congressional deadline to award these funds elapses. EPA has the fiscal responsibility to ensure ASHAA funds are used effectively. We recommend that the Agency solicit and utilize applications on an annual basis and in a timely manner prior to awarding ASHAA funds for the fiscal year. If HAAB cannot obtain new applications within the Congressional deadlines, the Agency should request a time extension from Congress.

Prior to awarding loans and grants, each LEA's application is ranked by EPA in accordance with the guidance in the act. The applications are evaluated based on the physical characteristics of the asbestos hazard in the school. Several key indicators are included in this hazard categorization and ranking; such as, degree of damage (major or minor), exposure (direct or through an air plenum) and exposure hours (weekly exposure hours). Those schools with severely damaged asbestos are ranked in Category I and schools with minor damage are ranked in Category II. The exposure hour total is derived for a project area by multiplying the number of people (students or employees) exposed with the amount of hours exposed each week (persons X hours/day X days/week). For example, a classroom used for five 1-hour classes of 30 students 5 days a week has an average weekly exposure hour total of 750 (30 students X 5 classes X 5 days). The combination of damage and the exposure hours results in a unique ordering or listing of all projects, known as the National Hazard Ranking [NHR].

Of the two project characteristics (damage and exposure hours), damage is more important because EPA ranks projects with major damage and one exposure hour higher than a project with minor damage and 100,000 exposure hours. Projects with major damage include asbestos containing material that is dislodged, hanging or missing, while projects with minor damage only require evidence of some physical contact not severe enough to dislodge portions of the asbestos containing material. The effect of the classification of either major (Category I) or minor (Category II) damage can be substantial because EPA does not consider the square footage of the damaged area. To illustrate the difference, one project with major damage could include dislodged asbestos in several classrooms exposing thousands of schoolchildren while another project with minor damage may include a boiler room with only some evidence of abrasions on the asbestos material. Accordingly, there is a significant difference in the health hazard associated with potential release of asbestos fibers between the two projects. To ensure ASHAA funds are used effectively, the Agency has to fund the projects of needy LEA's with the most serious health hazards.

The ASHAA law required that States submit new applications on an annual basis. This is important because applications need to reflect current and accurate information on such items as the degree of hazard, costs of abatement and the financial condition of the LEA. All of these items can change dramatically within a year. Accordingly, EPA should rank applicants annually to ensure ASHAA funds are targeted to the needy LEA's with the most hazardous projects.

Several factors contributed to not soliciting new ASHAA applications. In fiscal year 1987, Congress directed EPA to accelerate the award process by ensuring awards are made by April 1, 1987. This would enable school districts to complete necessary asbestos abatement work prior to the end of the 1987 summer school recess.

While Congress wanted EPA to expedite the award process, EPA requested that Congress rescind the ASHAA funds in fiscal year 1987 as part of the budget-cutting effort. The Assistant Administrator of OPTS has stated in written testimony to a Congressional Subcommittee that: ". . . direct Federal funding of abatement projects in schools does not represent the most effective use of Federal resources."

However, Congress approved a joint resolution forcing the Agency to spend the ASHAA funds appropriated for fiscal year 1987. This resolution was not approved until March 1987, 5 months into the fiscal year. Nevertheless, EPA still attempted to meet the award deadline of April 1, 1987.

To accommodate the April 1 deadline, EPA decided to have two award cycles instead of one. The first award cycle was for $34.2 million awarded to projects left over from qualified applications submitted in 1986. This was necessary because new applications could not have been obtained by the April 1 deadline. However, most of the projects with major damage and high exposure hours were already funded in 1986. Many of the remaining projects from 1986 consisted of less significant projects such as boiler rooms with minimal exposure hours or minor damage. As a result, EPA funded a total of 663 projects, of which only 171 or 26 percent had major damage with over 50 exposure hours per week. We found that 25 percent of the funded projects were for small areas such as boiler rooms, storage rooms and tunnels with exposure hours ranging from only 2 to 20 hours per week.

Subsequent to the first award cycle on April 1, 1987, EPA obtained new applications for approximately $8 million to be awarded on May 29, 1987. This amount was set aside to ensure that each State received $250,000 provided the State had enough qualified projects. In this second round of new applications, projects totalling $94 million qualified for funding based upon EPA's hazard and financial need criteria. Many of these projects were far more hazardous than the left over projects from 1986. However, EPA only had $8 million remaining in fiscal year 1987 funds. Approximately $5 million of the $8 million was needed to ensure that each State received the minimum of $250,000. Consequently, EPA was only able to fund 66 of 1,769 potential projects. Furthermore, 65 of the 66 projects were funded out of hazard sequence with over $1 million awarded to projects with minor damage.

The next chart illustrates the positive effects that could have been obtained by awarding the $34 million toward new applications ranked as category I.

OLD APPLICATIONS VS. NEW APPLICATIONS

	Exposure hours	Amount (in millions of dollars)
ACTUAL AWARD 1987 ROUND 1—OLD APPLICATIONS		
Category 1	682,843	12
Category 2	1,781,769	22
Total funded category 1 exposure hours	682,843	34
POTENTIAL AWARD 1987 ROUND 1—NEW APPLICATIONS		
Category 1 (funded 1987 round 2)	454,308	7
Category 1 (funded 1988)	2,164,545	23
Category 1 (unfunded 1988)	[1] 227,614	4
Total category 1 exposure hours	2,846,467	34

[1] Estimated—assuming $12 million could abate 682,843 exposure hours in 1987, $4 million could abate 227,614 exposure hours (4/12 X 682,843).

If EPA utilized the $34 million Round One award amount toward the new applications, the above chart illustrates that EPA could have abated an additional 2.2 million exposure hours for projects with major damage (2,846,467—682,843). The health hazard associated with exposure hours from major damage (Category I) is far more severe than exposure hours from minor damage (Category II). Major damage represents asbestos containing material that is dislodged, hanging or missing while minor damage only requires evidence of some physical contact not severe enough to dislodge the asbestos material.

A similar situation occurred in fiscal year 1988, when the President did not sign the Congressional Appropriation language until December 22, 1987. In this appropriation, Congress required a March 1, 1988 award date for $23 million in ASHAA loans and grants. Accordingly, EPA used the fiscal year 1987 priority list, which was now almost a year old, to satisfy the impending Congressional deadlines. The effect of using the old listing in fiscal year 1988 was not as significant as in fiscal year 1987, because in fiscal year 1987 only $8 million was awarded to the new applicants. Consequently, a significant number of major projects remained on the list for funding in fiscal year 1988. However, we believe that a new round of applications would, as in the previous rounds, have funded more high priority projects than the left over projects from fiscal year 1987.

Agency Reply to OIG Draft Report

OPTS agrees with the OIG that annual solicitation of new school applications is preferable. However, this has not always been possible, given late appropriations, the congressional deadlines mandated by the ASHAA appropriation language and the Federal requirements for application review and approval.

The Agency has made every effort to solicit new applications each year, so far as funds were provided and sufficient time was available to accomplish the lengthy application approval, distribution, completion, and review process. In fact, EPA has used applications which were previously on hand only twice, in 1987 and 1988. In 1987, EPA had about a month and, in 1988, the Agency had approximately 2 months to make awards, once funds were available.

Auditor's Comments

The Agency has responsibility to ensure ASHAA funding is used most effectively. We recognize that the Agency is faced with a number of constraints in adequately administering this program. However, when these constraints such as late appropriations and Congressional deadlines make it impossible to properly administer the program, the Agency must not sacrifice the effectiveness of the ASHAA program. The Agency must allow the Hazard Abatement Assistance Branch adequate time to properly administer the ASHAA program. Adequate time would enable EPA to solicit new applications from LEA's with the most serious and current health hazards. If adequate time is not available, the Agency should request a time extension from Congress.

Recommendation

We recommend that the Assistant Administrator for Pesticides and Toxic Substances solicit and utilize applications on an annual basis and in a timely manner prior to awarding ASHAA funds for the fiscal year. Whenever possible, EPA should send out applications early, rather than wait until funding is approved. This would give EPA additional time if funding was delayed, and would allow the Agency to comply with Congressional deadlines in awarding the funds.

2. EPA NEEDS TO REVISE REPAYMENT TERMS FOR ASHAA LOANS

EPA allows an inordinate amount of time to begin repayment of some ASHAA loans. We estimate that by establishing a more reasonable repayment schedule, EPA could have returned an additional $1.5 million to the asbestos trust fund by December 1989 plus an additional $700,000 each year thereafter (See Appendix A). The additional resources could have provided more loans and grants to other financially needy LEA's for their asbestos abatement. EPA allows all loan recipients a 2 year grace period after the award date before requesting repayment of the loan to begin. However, the work on many of the funded projects had already been completed prior to the award date or was finished within a year of the award date. In these instances, EPA paid 100 percent of the loan within a few months of the award date. This allows the LEA use of interest-free money for as long as 2 years before beginning a loan repayment program. We believe EPA should require LEA's to commence repayment within 6 months after completion of the abatement work. This modification to the loan agreement will enable EPA to fund additional health hazards at other financially needy LEA's.

According to the Asbestos School Hazard Abatement Act [ASHAA], all loans awarded under ASHAA will be interest free and will have a maturity period of 20 years or less. The law also provides that EPA determine the time and amount of repayments within the 20 year timeframe. EPA decided that repayments will be made in equal, semiannual installments (of not less than $2,500 each) beginning 2 years after the loan offer is made. Repayments will continue in installments for 18 years or until the balance is paid in full. As stipulated in the Asbestos Hazard Emergency Response Act of 1986, all loan repayments under ASHAA will go to an asbestos trust fund. This fund will be used by EPA to award additional loans and grants to financially needy schools.

EPA funds two types of projects. The first type of project is called a "Work-In-Progress" [WIP] project. The WIP project consists of abatement work typically started after the award date. On WIP projects the LEA requests funds to pay for costs incurred during work in progress. The second type of project is a "Reimbursement" project, whereby all the abatement work was complete prior to the award, but after January 1, 1984. The act provides that EPA cannot award financial assistance for abatement actions completed prior to January 1, 1984. Accordingly, EPA stated that any project completed after that date is eligible for reimbursement. On "Reimbursement" projects, EPA policy states that LEA's may receive the entire loan within 90 days of the award date.

Regardless of the type of project, EPA allows a 2 year grace period before requesting the first repayment. This grace period coincides with the 2 year project period which EPA allows for completion of the abatement work. Since many of the LEA's receive funds as the work transpires, the full amount of the loan is generally not received until the project is completed. Consequently, EPA decided to postpone the first loan repayment for 2 years after the award date, the maximum time for which the LEA has to complete work on the project.

We obtained a computer listing from the Grants Administration Division containing the type of funded project (reimbursement or WIP) for all awardees from fiscal years 1985 through 1988. We reviewed all reimbursement projects from this listing and any WIP projects with a loan amount greater than $100,000. Between 1985 and 1988, EPA had awarded 599 loans totalling $112 million to various LEA's. Discussion with OPTS personnel revealed that $17 million of the $112 million awarded as loans was for reimbursement projects and $95 million was for WIP projects.

LEA's received $17 million for reimbursement projects and had use of interest-free money for 2 years before any repayment was required. For example, one LEA was awarded a loan of $349,000 on July 28, 1986 for work completed prior to that date. The LEA received the $349,000 by November 1986. However, this LEA was not required to make the first of 36 repayments until December 1988, over 2 years later. The amount of the repayments is $9,700 semiannually over 18 years. Since this LEA already funded the work without an ASHAA award, we do not believe the LEA should be given a 2 year grace period before initiating repayment. This same LEA was awarded another loan for $240,000 in March 1987, and received the full amount by June 1987. Again, the LEA was reimbursed for abatement work which was already completed and paid for by the LEA, however, the repayments on the ASHAA loan would not begin until June 1989. In both instances, we estimate that, had the repayments been initiated within 6 months of the award date, the Trust Fund would have an additional $43,200 for future ASHAA awards.

We believe EPA should revise the repayment terms for applicants with reimbursement projects. Repayment should begin on the first semiannual repayment date following the final payment by EPA on the project, or 2 years, whichever is earlier. EPA's current repayment schedule requires LEA's to make repayments every 6 months, the end of June and December each year. We believe EPA could initiate repayment sooner under the same semiannual repayment schedule thereby maintaining the same uniformity and cost effectiveness under the existing payback process.

In addition to the reimbursement projects, many of the WIP projects were completed within 6 to 12 months of the award date. This occurred because the award was made in early spring with the work scheduled for that summer. When this happens, the LEA receives all funding within 6 to 12 months of the award and is not required to begin repayment until 12 to 18 months later.

For example, one LEA was awarded a loan of $652,823 on March 25, 1987 for work to be completed after the award date. The LEA completed the work and received the $652,823 by March 1988. However, this LEA was not required to make the first of 36 repayments until June 1989, over 1 year later. The amount of the repayments is $18,134 semiannually over 18 years. Since the LEA completed the work and received all of the award within 1 year, we do not believe the LEA should have use of the interest free money for an additional year before initiating repayment. We estimate that, had the repayment been initiated within 1 year of the award date, the trust fund would have an additional $36,268 for future ASHAA awards.

We were unable to compute the total number of WIP projects completed within the first year of the award. However, from our sample of 90 projects, 44 of the projects (49 percent) were completed early in the 2 year period. These LEA's completed the work from 7 months to 20 months before the first repayment was due. EPA should initiate the repayment process promptly after the project is completed.

Furthermore, EPA should not wait 2 years until the awardees receive 100 percent of the award to require repayment. LEA's receive 90 percent of the award as costs are incurred, however, EPA retains 10 percent of the award until all of the final documentation is submitted. We found numerous applicants were not receiving the full amount of the award for several reasons, many of which were the fault of the LEA. One such reason was that the applicants were not submitting all the necessary documentation. We believe these applicants should be required to initiate repayment when the work is completed and 90 percent of the award is paid. This would allow EPA to accumulate more funds in the asbestos trust fund for future awards.

Agency Reply to OIG Draft Report

OPTS, acting on the OIG finding, is working with GAD and the Agency's Las Vegas Financial Management Center [LVFMC] to determine if a revised repayment system would be feasible and advisable for the 1990 or any future ASHAA award cycles. We expect a determination on this issue before the 1990 awards.

While we understand and appreciate the OIG's objectives in this matter, two factors in particular may mitigate against adopting the OIG recommendation. First, the period between an ASHAA award to a local education agency (LEA, which is a public school district or a private school) and the date of the first repayment installment, approximately 2 years later, was established to provide sufficient time for LEA's to conduct abatement actions or to complete specific financial procedures related to receiving the award.

Second, a uniform repayment schedule was selected to improve the efficiency of EPA's financial monitoring activities. While LVFMC and GAD are unable to presently quantify the additional costs and resource requirements which might be incurred by the OIG's recommended repayment system, which would track each individual ASHAA award on a separate payment initiation schedule, they would likely be significant. Further, this extra cost to EPA would not produce any immediate benefits to LEA's since funds repaid to the asbestos trust fund are not presently available for redistribution to other financially needy schools.

Nevertheless, we agree that a speedy return of the money to the asbestos trust fund would be beneficial in the event Congress allows EPA access to these funds. Thus, OPTS will continue to work with GAD and LVFMC to evaluate alternate repayment schedules and make any appropriate program changes in time for a 1990 award cycle.

Auditor's Comments

It is important to ensure the timely and effective use of ASHAA funds. Many ASHAA awardees have either already completed the asbestos abatement prior to receiving the EPA award or will complete the abatement within the first summer after the award. We recognize that the awardees must still complete certain administrative and financial procedures even after the abatement work is complete. However, we believe that EPA and the LEA's should be able to complete the necessary procedures within 90 days after completion of abatement. Accordingly, this would allow LEA's to initiate repayment as much as 18 months earlier.

Further, we are not suggesting that the Agency track individual awards on a separate time schedule. We are recommending that the Agency continue to use the present semiannual repayment periods (June and December); however, the Agency should revise the loan repayment schedules to initiate repayments earlier. Since the repayment periods would remain the same, the additional costs and resources to revise the system would not be excessive. We believe the benefits from accumulating additional funds for needy schools would exceed the costs of revising the repayment schedules.

Finally, we are issuing a finding on the asbestos trust fund which will hopefully resolve the Agency's inability to use the Fund. See finding entitled "ASBESTOS TRUST FUND NOT AVAILABLE TO LEA's."

Recommendation

We recommend that the Assistant Administrator for Administration and Resources Management modify the future loan agreement to revise repayment terms for applicants receiving loans. Repayment for reimbursement projects should commence 6 months after the award date. Repayment for WIP projects should commence on the next semiannual repayment date after the work is completed or 2 years after the award date, whichever is earlier.

Mr. LUKEN. Thank you, Ms. Herber. Certainly that is a very clear and forthright statement which will be helpful to the subcommittee.

Mr. Billirakis, you're with the Ohio Education Association and speaking, I believe, on behalf of the NEA; is that right?

Mr. BILLIRAKIS. That's correct, Mr. Chairman.

Mr. LUKEN. We will be pleased to hear from you.

STATEMENT OF MICHAEL BILLIRAKIS

Mr. BILLIRAKIS. Mr. Chairman, I am Michael Billirakis, vice president of the Ohio Education Association.

Mr. LUKEN. Are you related to another Bilirakis around here?

Mr. **Billirakis**. That's correct, sir. He is a Congressman from Florida, my first cousin. He spells his name with one "l" and I spell mine with two. My father threatened to disown me if——

Mr. **Luken**. He always was confused. We've noticed that.

Mr. **Billirakis**. My father promised to disown me if I changed it.

Mr. **Luken**. He was a member of this subcommittee and was so confused that he left.

No, he's a very valued member and a good friend of ours. We wanted to make sure you associated yourself with him.

Mr. **Billirakis**. We do hold great regard for him, a great love for him. Thank you for saying what you did.

Accompanying me is Joel Packer, legislative specialist for the NEA. On behalf of the 2 million members of the National Education Association, I appreciate the opportunity to comment on the threat of hazardous asbestos in the schools.

In 1984, NEA was instrumental in the development and enactment of the Asbestos School Hazard Abatement Act. Since that time, almost 1,800 schools have received $245 million to assist them with abatement projects. These funds represent 8 percent of the $3 billion EPA estimates it will cost for comprehensive asbestos abatement. Since 1985 in Ohio, Mr. Chairman, there have been 115 LEA awards, encompassing 88 school districts, with a total award of over $30.5 million. In 1984, in the ad hoc asbestos advisory committee in Ohio, it was estimated that $400 million would be needed to remove asbestos from our schools in the State of Ohio at a cost of $3 to $4 per square foot. The cost currently is between $8 and $10 per square foot.

Hazards of friable asbestos are well-known. Its link to cancer and other disease is widely recognized. EPA has estimated that as many as 15 million children and 1.5 million school employees are regularly exposed to friable asbestos. Young children are particularly at risk. A child exposed from age 5 to 10 has about 10 times the chance of developing cancer as an adult exposed to the same amount of asbestos between the age of 35 and 40.

Recently, a number of scientists have attempted to minimize the dangers of asbestos. Reasonable people may debate whether all asbestos in the schools represents a hazard, but no one can challenge whether asbestos that is present in the State that is damaged or likely to be damaged must be abated in a responsible manner.

NEA strongly maintains support for the Asbestos Hazards Emergency Response Act. AHERA does not require removal of asbestos in most cases. It requires schools to inspect for asbestos and develop a comprehensive asbestos management plan. Repeal or weakening of AHERA will lead to increased lung disease and deaths among school employees and children.

In addition, schools must receive financial assistance to address the most serious asbestos hazards. Between fiscal years 1985 and 1990, only 15 percent of schools seeking assistance under ASHAA have been funded. Only one-third of the high priority projects have been funded under AHSAA.

The need for continued assistance under ASHAA is clear. Indeed, in fiscal year 1990, more than $260 million in requests under ASHAA were ranked as qualified for funding by EPA because the asbestos was friable, damaged, and exposed, and the school district was financially needy.

The Asbestos School Hazard Abatement Reauthorization Act would reauthorize this program through fiscal year 1995 and double the annual authorization. NEA strongly supports the proposed improvements in the application and award process. In addition, we urge Congress to provide funding levels to meet the authorized levels. The most Congress has ever provided for ASHAA was $50 million in fiscal year 1986. It is likely that the costs to schools for implementing management plans will increase over the next few years.

We are deeply disappointed that the House Appropriations Subcommittee on VA, HUD and Independent Agencies recommended only $48 million for ASHAA for fiscal year 1991. We strongly urge the members of this subcommittee to support an increase in the fiscal year 1991 ASHAA funding. At present, funds repaid to the Federal Government from ASHAA loans are placed in the asbestos trust fund established by AHERA. H.R. 3677 would be greatly improved by the addition of language that gives EPA authority to distribute such funds as they are repaid. It makes no sense to allow money dedicated for school asbestos abatement to go unspent when the need is so clear.

In addition, we recommend the committee examine the financial need criteria for ASHAA. EPA uses only one factor—per capita income of the school district. The committee should direct the EPA to consider other economic factors in determining financial need.

NEA strongly urges you to extend, expand and improve ASHAA, and we pledge to work with you to see that the threat of asbestos and other environmental hazards in the schools are completely eliminated. Thank you.

[The prepared statement and attachment of Mr. Billirakis follow:]

PREPARED STATEMENT OF MICHAEL BILLIRAKIS, VICE PRESIDENT, OHIO EDUCATION ASSOCIATION, ON BEHALF OF THE NATIONAL EDUCATION ASSOCIATION

Mr. Chairman and members of the committee: I am Michael Billirakis, Vice President of the Ohio Education Association. I am here today on behalf of the 2 million-member National Education Association which represents professional and support employees in elementary, secondary, vocational, and postsecondary schools throughout the nation. I appreciate the opportunity to comment on an issue of critical importance to health and safety of millions of American students and school staff: the threat of hazardous asbestos in the schools.

My testimony today will primarily focus on support for H.R. 3677, the Asbestos School Hazard Abatement Reauthorization Act [AHSAA], as well as NEA's continued support for the Asbestos Hazard Emergency Response Act [AHERA]. I am pleased to note that just last week the ASHAA reauthorization was reported by unanimous voice vote from the Senate Environment and Public Works Committee.

The issue of asbestos in schools has been the subject of extensive Congressional and Administrative review for over a decade. In 1979, the Environmental Protection Agency [EPA] instituted a technical assistance program to help schools respond to asbestos problems. In 1980, Congress enacted the Asbestos School Hazard Detection and Control Act, administered by the U.S. Department of Education, which established a program of loans and grants to assist schools financially with asbestos detection and abatement. Unfortunately, no funds were ever appropriated for this program.

In 1984, NEA was instrumental in the development and enactment of the Asbestos School Hazard Abatement Act [ASHAA] which transferred this program from the Department of Education to EPA and authorized $100 million per year to carry out the program. The authorization has since been increased to $125 million per year. Since that time, 1,739 schools with the most serious problems, and the fewest resources to address them, have received $245.2 million to assist them with 2,400 abatement projects. These funds have helped eliminate more than 19 million hours of exposure to asbestos by students and school employees. Federal funds appropriated for grants and loans is only a fraction—about 7.9 percent—of the $3.1 billion the Environmental Protection Agency estimated it will cost for comprehensive asbestos abatement in accordance with AHERA. Other estimates project the cost to be as much as $6 billion.

The hazards of friable asbestos are well-known. Its link to cancer and other debilitating and potentially terminal diseases is widely recognized. EPA has estimated that as many as 15 million children and 1.5 million school employees work in more than 44,000 school buildings containing friable asbestos—not just asbestos that is present and not likely to be disturbed, but asbestos that is easily crumbled and likely to deteriorate in locations that represent a serious threat to health and life. In addition, virtually all of our nation's 107,000 schools contain nonfriable asbestos, which can also release fibers under certain conditions.

Research shows that young children are particularly at risk. In 1983, the EPA's Office of Toxic Substances cautioned: "The age at which asbestos exposure occurs is very important in determining the lifetime risk of developing mesothelioma (cancer). This fact creates a special concern for asbestos exposure to children . . . A child exposed from age 5 to 10 will have about 10 times the chance of developing mesothelioma as an adult exposed to the same amount of asbestos between ages 35 and 40. In addition, children appear to be more susceptible than adults to (other) asbestos-related diseases."

Articles published last year in the New England Journal of Medicine and Science magazine suggest that concerns about asbestos in schools are unfounded. These articles do not represent new research; they are simply reviews of preexisting studies. NEA rejects the idea that "chrysotile asbestos, the type of fiber found predominantly in U.S. schools and buildings, is not a health risk in the nonoccupational environment," as reported by Brooke Mossman, Morton Corn, Bernard Gee, et al. in Science.

This exact question has been reviewed by Congress in July 1985 during a Senate hearing on ASHAA. Former Senators Stafford [R-VT] and Abdnor [R-SD] wrote to several scientists requesting their views on "the health effects of inhaled chrysotile asbestos." In response, Dr. James O. Mason, then director of the Centers for Disease Control, submitted a statement that concluded, "(Scientific studies) conclusively demonstrate that chrysotile asbestos is a hazardous substance and poses a substantial health risk when inhaled."

EPA in its July 1989 final rule on banning future manufacture, importation, and distribution of asbestos stated categorically that "It is well recognized that asbestos is a human carcinogen and is one of the most hazardous substances to which humans are exposed in both occupational and nonoccupational settings." The EPA also stated, "All commercial forms of asbestos have been shown to produce lung tumors and mesothelioma . . . in laboratory animals with no substantial differences between the form of asbestos in carcinogenic potency." Moreover, this regulation was the result of 3 years of review and some 45,000 pages of comments.

The contention of the Science article is clearly out of touch, not only with these statements, but also with the conclusions of the Consumer Product Safety Commission, the National Institute for Occupational Safety and Health, and the American Cancer Society, among many others. The contention that asbestos in buildings is not a health threat has been answered by numerous well-qualified experts, including Dr. Christine Oliver of Harvard Medical School, Dr. Philip Landrigan and Dr. Steven Levin of the Mount Sinai School of Medicine, and Dr. James Melius of the New York State Department of Health.

Dr. William Nicholson of the Mount Sinai School of Medicine challenged the conclusions of Mossman et al., specifically the contention that exposures of 0.002 fibers per cubic centimeter are not a health threat. Writes Nicholson, "It has been calculated that the lifetime risk for a 13-year exposure at this level, beginning at age five, ranges from 4 to 12 asbestos cancer deaths per 100,000 exposed . . . For a school population of 20 million pupils, this translates into 800 to 2,400 cases of cancer."

Most other carcinogens are regulated by EPA when projected to cause one cancer death per 1 million people, well below the projected cancer deaths cited here.

In fact, levels of asbestos in schools may be higher than the level of 0.002 f/cc, particularly in the absence of an asbestos management plan. In its February 1988 report to Congress on public buildings, EPA found that the mean level of asbestos in

41 surveyed school buildings was 0.03 f/cc. The highest reading found was 0.1 f/cc, equal to the action level of allowable occupational exposure established by the Occupational Safety and Health Administration [OSHA]. Even the 0.03 f/cc level is more than 100 times higher than the exposure levels of 0.00024 f/cc suggested by Mossman et al.

Moreover, the real concern is not with current average indoor air concentrations of asbestos. The impetus for AHERA stems from the fact that friable asbestos, unless properly maintained, will become damaged and release fibers. Even routine maintenance activities can lead to peak fiber release episodes of 100 to 1,000 times average levels. A 1977 study by Dr. Sawyer measuring asbestos levels in a college library found a mean level of 0.02 f/cc. And yet, routine activities, such as cleaning and moving books, resulted in airborne levels skyrocketing to 15.5 f/cc, while maintenance work, such as removing a section of ceiling, raised levels even higher: to 17.7 f/cc.

Indeed, while some publications have characterized current Federal law concerning asbestos in schools as "fiber phobia" or "paratoxicology," recent evidence shows school custodial workers suffering disproportionately high levels of asbestos-related lung disease. The rate of such abnormality in a study by Mount Sinai was 39 percent for a group of New York City school custodians with at least 35 years of work experience. Interestingly, of those custodians who had no other asbestos exposure outside of schools, the abnormality was higher. A 1989 study of 121 Boston Public School custodians by Dr. Oliver of Massachusetts General Hospital found asbestos-related scarring of the lining of the lungs in 40 percent of these individuals, including 21 percent of those custodians without any other known asbestos exposure.

In addition, Dr. Henry Anderson, chief State epidemiologist for Wisconsin, has said that a new study of mesothelioma cases in Wisconsin found a three- to four-fold increase in the risk of mesothelioma among firefighters and police officers, school employees, postal workers, and janitors. He specifically identified individuals who worked in buildings with asbestos and later died of mesothelioma including two school maintenance workers, a teacher, and a school cafeteria cook.

Anderson also concluded from studying chest x-rays of school maintenance workers that 43 percent of those workers with 30 or more years on the job have asbestos-related lung abnormalities.

NEA strongly maintains our support for AHERA. Most critics of the statute have misrepresented what it does. AHERA does not require removal of asbestos in the vast majority of circumstances. The statute requires schools to inspect for asbestos, assess its condition, develop a comprehensive asbestos management plan, and implement appropriate response actions, including special operations and management procedures, repair, enclosure, encapsulation, or removal.

NEA and other responsible advocates have never contended that removal of asbestos was always the solution. Indeed, a July 1989 joint EPA/NEA/PTA publication, "The ABCs of Asbestos in Schools", states "Most asbestos-containing material can be properly managed where it is. In fact, asbestos that is managed properly and maintained in good condition appears to pose relatively little risk to students and school employees. Accordingly, the AHERA schools rule rarely requires the removal of asbestos materials."

A thorough inspection and responsible, ongoing management of asbestos is warranted by the evidence of asbestos research and the investigations of school buildings across the nation. Even Dr. Corn, who attempts to discount the risk of asbestos in buildings, acknowledged in a statement before the House Subcommittee on Health and Safety on April 3, 1990, ". . . Asbestos must be treated with respect. There should be requirements for surveying buildings to determine where the ACM (asbestos-containing material) is located, the occupants of buildings should be alerted to its presence and informed of the concentrations of measured concentrations of asbestos-in-air in the buildings . . . (And) the maintenance personnel in the buildings should be instructed in an O&M (operations and maintenance) plan containing specific procedures relative to their building and the specific maintenance that they perform." These elements are all part of AHERA.

Some members of Congress have introduced legislation to repeal AHERA. We strongly oppose this and believe repeal would be totally irresponsible. As former EPA Administrator Lee Thomas stated in a February 26, 1988 letter to Congress, ". . . asbestos in schools . . . represents a potential health hazard that deserves careful attention. We should be very careful not to take steps which undermine the (AHERA school asbestos programs') completion."

AHERA was specifically designed to put in place a comprehensive, rational framework to clean up asbestos where it is presently a hazard and put in place preventive measures to manage in-place undamaged material. As of October 1989, 94 percent of all school districts had prepared management plans. Repeal would mean that schools would not have to do anything to respond to damaged asbestos, not have to follow worker and building occupant protection standards during abatement, not have to utilize workers who are accredited either by States or EPA, not have to notify parents, teachers, and other school employees of whether and to what extent asbestos is present in their school building, not have to meet the reoccupancy clearance levels after an abatement action, and not have to follow asbestos transport and disposal regulations.

Put simply, repeal or weakening of AHERA will lead to increased lung disease and deaths among school employees and children.

Let me emphasize that, as of July 1989, AHERA provides school districts with a great deal of flexibility—not only in which response action to choose, but also the timing of implementation. While there were strict deadlines for completing the inspection and preparing the management plan, there are few remaining deadlines beyond July 1989. Schools are required to conduct a visual review of asbestos material every 6 months, but the review does not have to be performed by an accredited person. Once every 3 years schools must conduct a formal reinspection. Other than that, schools may set their own schedule and select their response actions, based on the advice of the plan developer. A school can also revise its management plan in conjunction with the plan developer. One key condition for any response action is that it must be sufficient to protect human health and the environment.

A much more responsible alternative to repeal of AHERA is the amendment to the ASHAA reauthorization adopted by the Senate Environment and Public Works Committee which requires EPA to send additional information to schools about their options under AHERA. In fact, we have strongly encouraged EPA to do so and cooperated with EPA in the publication of the "ABCs of Asbestos", as well as a publication soon to be released, "The Environmental Hazards in Schools Handbook". The proposed ASHAA reauthorization also allows up to 5 percent of funds each year to be used by EPA for training, technical assistance, and information dissemination.

NEA believes that any amendment that would weaken AHERA or its regulations is not justified at this time. EPA is in the process of evaluating implementation and effectiveness of AHERA and we believe it would be prudent to wait for the results of these studies.

In the most recent round of applications for ASHAA grants and loans appropriated for fiscal year 1990, 863 local education agencies applied for funds amounting to $403 million to carry out 1,856 asbestos abatement projects. The $43.4 million Congress provided last year to fund ASHAA loans and grants is sufficient to pay for less than 11 percent of those requests.

Between fiscal year 1985 and fiscal year 1990, only 15 percent of the 11,560 schools seeking assistance under ASHAA have been funded. Over the lifetime of the program, about one-fifth of all local education agencies have requested funding under ASHAA. Some 40 percent of the projects proposed were considered Hazard Category I, the most serious rating in EPA's system for evaluating asbestos dangers. Only one-third of even these high-priority projects have been funded under ASHAA.

Hazard Category I projects are characterized by friable asbestos-containing building materials exposed or in an air plenum and considered to arise from (1) damaged or significantly damaged thermal system insulation; (2) significantly damaged surfacing materials; or (3) significantly damaged miscellaneous material which has been isolated to protect human health and the environment.

The need for continued assistance under ASHAA is clear. Indeed, in fiscal year 1990, more than $260 million in requests under ASHAA were ranked as qualified for funding by EPA because the asbestos was friable, damaged, and exposed, and the school district was financially needy. This $260 million is the largest yearly amount that EPA has ever received in qualified requests, and is more than double the fiscal year 1989 level. Obviously, as schools implement their management plans, financial pressures will remain great over the next several years.

Support for the program is also widespread. NEA coordinates the Asbestos in the School Coalition, which has lobbied actively for increased ASHAA funding for the past 6 years. The 40 Coalition members include school groups, environmental, health, and labor organizations. Reasonable people may debate whether all asbestos in the schools represents a hazard. But no one can challenge whether the presence of airborne asbestos is a health hazard. And no one can challenge whether asbestos that is present in a State that is damaged or likely to be damaged must be abated in a responsible manner.

The Asbestos School Hazard Abatement Reauthorization Act (H.R. 3677), with more than 80 cosponsors, would reauthorize the program of grants and loans to schools to address serious asbestos hazards through fiscal year 1995. It would increase the annual authorization from $125 million to $250 million. It is important to note that about 70 percent of the funds have been provided as loans to be repaid to the Federal Government.

In addition, the measure would make a number of improvements in the administration of the program. It would require EPA to distribute applications to local education agencies within 45 days of the enactment of any appropriation for ASHAA and require EPA to make awards no later than April 30 of each year. The provision will prevent problems, such as those that have occurred in the past, with delays in distribution of applications and awards. It will also prevent OMB from prohibiting EPA from distributing applications at all, as was the case in fiscal year 1987.

Moreover, the legislation would require that LEA's must have prepared and be implementing a management plan in compliance with AHERA, and that abatement projects be carried out by AHERA-accredited personnel, to be considered for an award. The measure also allows 5 percent of ASHAA funds to be used to assist schools with reinspection and training. NEA strongly supports these improvements. At the same time, we strongly urge Congress to provide funding levels that meet the authorized levels. The most Congress has ever provided in a fiscal year for ASHAA awards to schools was $47 million in fiscal year 1986—less than one-half of the authorized amount. Every year, the White House has recommended no new funds—despite clear evidence that the hazards continue to exist. In fact, President Bush's budget for fiscal year 1991, once again requests no funds for ASHAA. In the past, the Office of Management and Budget has stated that "additional funding would go to low priority projects." And yet EPA's own statistics on applications shows this not to be the case. It is likely that costs to schools for implementing management plans will increase over the next few years.

We are, therefore, deeply disappointed that last week the House Appropriations Subcommittee on Veterans Affairs-Housing and Urban Development-Independent Agencies, which has jurisdiction over EPA funding, only recommended $48 million for ASHAA for fiscal year 1991. This represents level funding after the Gramm-Rudman reductions in the fiscal year 1990 appropriation. We strongly urge the members of this subcommittee to work actively to seek an increase in the fiscal year 1991 ASHAA funding as the appropriations process proceeds.

The ASHAA reauthorization would provide funds to continue to assist schools that have demonstrated asbestos hazards and are in compliance with AHERA regulations for inspection and management. Moreover, the grants and loans are provided only to those schools with the most severe economic impediments to address the health threat. EPA reported in 1986 that 80 percent of the projects funded in the ASHAA program were in school districts where the per capita income is less than 65 percent of the national average; more than one-third of the awards went to schools where the per capita income is about 50 percent of the national average.

At present, funds repaid to the Federal Government from ASHAA loans are placed in the asbestos trust fund established by AHERA. H.R. 3677 would be greatly improved by the addition of language that gives EPA authority to distribute such funds as they are repaid. The purpose of this Fund was to have repaid loans made available to provide additional ASHAA awards. OMB projects that about $25 million will available in the Trust Fund by fiscal year 1991. However, funds can be spent from this Fund only subject to appropriations. Unfortunately, no money has ever been released from the Trust Fund and the $25 million therefore serves simply to contribute minutely contribution to reducing the overall deficit.

New data NEA has just obtained from EPA indicates that without any new appropriations, the asbestos trust fund will grow to $33 million in fiscal year 1992, $44 million in fiscal year 1993, $57 million in fiscal year 1994, and $70 million in fiscal year 1995, finally reaching $431 million in fiscal year 2010 (See attachment). It makes no sense to allow money dedicated for school asbestos abatement to go unspent year after year when the need for the money is so clear.

NEA believes ASHAA should be amended to give EPA the authority to provide ASHAA awards from the Trust Fund to schools that meet EPA's own criteria. Indeed, for any year in which qualified application requests exceed appropriated funds, EPA should provide Trust Fund moneys to these qualified applicants who would otherwise go unfunded.

Without question, funds for asbestos abatement—when necessary—will reduce the total resources available in a school district for the full range of programs and services necessary to provide quality educational opportunities. And we must not force those schools at the lower end of the economic scale to choose between quality education and the health and lives of its students and staff.

In addition, the committee needs to examine the financial need criteria used by EPA in determining whether a district is eligible to receive ASHAA assistance.

Since the program's inception, EPA has used only one factor—per capita income of the school district for public schools. Those in the top 30 percent are automatically considered ineligible.

This standard fails to take into account the cost of the abatement project in relation to the school's overall budget. It ignores any differences in terms of variations of the cost-of-living across geographic lines, or any other circumstances. NEA recommends that the committee direct EPA to consider factors such as these in determining financial need.

NEA strongly urges you to extend, expand, and improve the Asbestos School Hazard Abatement Act, and we pledge to work with you to see that the threat of asbestos and other environmental hazards in the schools are completely eliminated.

Thank you.

NEA Attachment 1

Table 1.—ESTIMATE OF YEAR-END BALANCES IN THE ASBESTOS TRUST FUND, BASED ON REPAYMENT OF LOANS AWARDED IN FISCAL YEAR 1985 THROUGH FISCAL YEAR 1990

	Asbestos trust fund balance
Fiscal year:	
1987	$837,000
1988	3,426,000
1989	7,810,000
1990	14,941,000
1991	22,692,000
1992	32,627,000
1993	44,208,000
1994	56,704,000
1995	70,186,000
1996	84,734,000
1997	100,432,000
1998	117,369,000
1999	135,644,000
2000	155,364,000
2001	176,641,000
2002	199,599,000
2003	224,370,000
2004	251,099,000
2005	279,190,000
2006	307,776,000
2007	336,863,000
2008	367,042,000
2009	398,471,000
2010	430,811,000

Mr. **Luken**. Do you have a formula for distribution?

Mr. **Bilirakis**. I'm not an expert, but my expert might.

Mr. **Luken**. Well, we'll call upon you next. Could you incorporate your——

Mr. **Packer**. Well, I'm not a witness, but——

Mr. **Luken**. Go ahead.

Mr. **Packer**. We don't have a specific formula, but I think, as Mr. Eckart mentioned, EPA should look at such factors as the total cost of the abatement project in relation to the school's budget. I think they need to look at variations in income and cost to——

Mr. **Luken**. But you've got to come up with a formula.

Mr. **Packer**. I think what the committee might want to do is——

Mr. **Luken**. Otherwise, you'll have EPA looking at everything but deciding nothing.

Mr. **Packer**. That's possible. I think what the committee may want to do——

Mr. **Luken**. It's not their fault, if we don't tell them how to decide.

Mr. **Packer**. Right. I think they should be directed to a minimum—as Ms. Fisher indicated, they are considering already an exceptions policy. Right now, if the school district is in the top 30 percent of per capita income, they don't look at their application beyond that. They don't look at how much the project costs; they don't look at how hazardous the project is. I think their current policy is just too inflexible.

If the committee doesn't want to specify an exact formula, they should sort of at least mandate that they have an exceptions policy so that they at least look at the rest of the application and see if the schools, even though they may be in the top 30 percent of per capita income, have a need for funding.

Mr. **Luken**. And would you identify yourself for the record? The following person said the foregoing.

Mr. **Packer**. My name is Joel Packer. I'm a legislative specialist on the staff of the National Education Association.

Mr. **Luken**. I think you've illustrated that finding a formula is difficult, as it has been for the Ohio State Legislature and other legislatures. I doubt if we're going to be a whole lot better at it at the Federal level.

Mr. August.

STATEMENT OF JAMES D. AUGUST

Mr. **August**. Thank you.

I am James August. I was one of the American Federation of State, County and Municipal Employees representatives during the negotiated rulemaking, so I go way back with this one.

Among our 1.3 million members, we represent school employees, including janitors, and many thousands more——

Mr. **Luken**. Did you bring the New York report with you?

Mr. **August**. No, I'm afraid not. I thought that would be coming on the plane. But we can get it for you.

Mr. **Luken**. Promises.

Mr. **August**. We represent building service workers in schools as well as nonschool buildings. I have provided training over the last 5 years to custodians as well as trades people, so I am very familiar with the problems of training and what it takes to do the job right.

Many AFSCME members and retirees have died or become seriously ill as a result of their exposure to asbestos. That includes asbestosis, not just the cancers, as Dr. Gee was alluding to. These exposures occurred as a result of day-to-day, routine exposures, not large asbestos jobs under removal projects.

One thing that's clear, that's been said by witnesses on all sides, is that schools need more money if they are, in fact, going to implement AHERA. AFSCME has conducted a survey of its members in the Ohio public schools and we discovered that a majority of schools have failed to implement basic AHERA requirements which are necessary to prevent the exposure to building occupants. The failure of local education agencies to properly manage asbestos has therefore subjected workers and students to unreasonable levels of asbestos exposure and continues to do so.

In all places where compliance has been a significant problem, LEA's have cited the shortage of funds as the main reason they have not or cannot implement particular AHERA requirements.

Now, despite problems with implementation, it would be very wrong to conclude that AHERA was a bad idea all together. More money and better enforcement are needed to make AHERA effective. By way of analogy, no one suggests that we repeal laws which prohibit drinking and driving just because such statutes do not deter all individuals from driving while intoxicated and law enforcement fails to catch all offenders.

A new epidemic is emerging among those who have been exposed to asbestos fibers that have been released from asbestos materials already in buildings, and that population at risk certainly includes the other building occupants and not just the workers. I won't repeat what Dr. Levin said on those points.

I will say, though, I thought Dr. Levin would cover the fact that Dr. Oliver at Harvard has done similar studies of Boston custodians and has found very, very similar findings. In addition, Dr. Anderson, with the Wisconsin Division of Health, presented evidence and cases very recently on mesothelioma cases among public employees in Wisconsin, and these included 8 municipal building workers, 11 school maintenance workers, 13 teachers, and 3 other school employees. These mesotheliomas are always deadly.

The emerging body of evidence clearly indicates that asbestos is a potential hazard for occupants as well as building service workers.

Unfortunately, not everyone agrees about the risks of asbestos. An organization known as the Safe Buildings Alliance, for example, has spearheaded an unconscionable public relations effort aimed at dismissing the risks of asbestos. There is nothing safe or benign about SBA, which is comprised of former manufacturers of asbestos products. The industry merely seeks to defeat or delay health protective laws and regulations by denying that asbestos in buildings poses a hazard and thereby ultimately reduce their own financial and legal exposure problems.

Let's remember that, for decades, the asbestos industry denied any health risks from their products at all. When thousands of manufacturing, shipyard and other installers of asbestos products died, the industry reluctantly conceded that there was a problem. Now that disease has been documented among building service workers, such as custodians, the asbestos industry reluctantly admits that these workers may be at some risk. Should we listen to these same parties now when they tell us that occupants are not at risk?

To support their claims, the asbestos industry has cited the commentary which appeared in Science magazine. Mossman and Gee and the other authors assert that chrysotile asbestos, the most comment form of asbestos, is less toxic than other asbestos forms. Again, we've just heard that discussion. The point is, there are no inhaler-friendly fibers.

What is even more disturbing about that article, though, is the public policy conclusions they draw. They argue that the discovery

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of asbestos in a building creates panic, which they have called "fiber phobia". This results in unnecessary and even dangerous removal jobs, they assert. The article perversely concludes that the aim of public policy should be to curtail the so-called asbestos panic in this country. We, quite frankly, think that asbestos is the hazard.

AHERA recognized that it's not possible to base policy on air measurements of asbestos because, once it's in the air, you've lost the battle to prevent exposure.

Now, to address the point that you made about what are we going to do until it's all removed, there are interim steps which AHERA nicely lays out about how to monitor, survey and control exposures. Now, if you don't remove it, that doesn't mean that you're off the hook in terms of the expense. The cost of properly conducting operations and maintenance activities in the building are also substantial. It includes training and equipment and all sorts of other things.

Our study of compliance with AHERA by Ohio schools revealed that the majority of schools have failed to implement even the most basic elements of their asbestos management plans. Only two-thirds of custodial and maintenance staff had been informed of the locations of asbestos. Just over half the employees reported that warning signs had been posed in their schools. Only about one-third of the employees engaged in activities involving small amounts of asbestos have had proper training and have been issued a respirator. Only one-third of the workers who have been issued a respirator have received fit testing and required medical exams. Only one-fifth of the workers have HEPA-equipped vacuum cleaners to clean up and repair asbestos, and as many as one-third to one-half reported that they are expected to perform various custodial and maintenance activities which are prohibited where asbestos is involved.

The report on Ohio schools has implications for preventing exposure in public buildings—and I'll end with this point. As pointed out before, there are hundreds of thousands of buildings that contain asbestos, and in many of those buildings it's damaged asbestos. Asbestos is obviously no less a hazard in the other buildings as they are in the schools. To remedy the situation, AFSCME is currently involved with other labor unions in a lawsuit against the Environmental Protection Agency to force just such action, because unless the material is inspected, there is no way that you can have a reasonable or intelligent response to the presence of asbestos.

In conclusion, there are problems and have been problems with implementation. Even so, schools have clearly and substantially improved their efforts to address asbestos since the passage of AHERA. However, schools clearly need far more financial resources if they are to fully comply with AHERA and thereby adequately protect the entire school population. AHERA is not only essential for protecting school populations from asbestos, it is also the type of model which we need for other buildings.

I thank you.

[Testimony resumes on p. 180.]

[The prepared statement and attachments of Mr. August follow:]

Prepared Statement of James August, Occupational Health and Safety Specialist
American Federation of State, County
and Municipal Employees

Introduction

I am **James August**, Occupational Health and Safety specialist with the American Federation of State, County and Municipal Employees [AFSCME]. I am a Master of Public Health, have received accreditation as a building inspector for asbestos-containing materials [ACM] and management planner, and have been trained in proper work practices for operations that involve asbestos. For five years I have provided technical assistance and training to AFSCME local unions across the country to protect our members from exposure to asbestos. I was one of AFSCME's representatives for the Asbestos Hazard Emergency Response Act [AHERA] negotiated rulemaking which developed the Environmental Protection Agency's [EPA] asbestos in schools rule. I also represented AFSCME at the recently concluded EPA policy dialogue on asbestos in public and commercial buildings.

Nationally, AFSCME's 1.3 million members work in a wide range of job classifications, primarily in state and local government, hospitals, and nonprofit organizations. AFSCME represents school employees across the country, and many thousands more custodial and maintenance workers in nonschool buildings. The majority of AFSCME members work in buildings that contain asbestos.

AFSCME members and retirees have died or become seriously ill as the result of their exposure to asbestos in schools and other buildings. It is critically important to emphasize that most of the workers inhaled asbestos as the result of custodial or maintenance tasks in which disturbances of asbestos materials were not controlled. Therefore, their deaths and illnesses are primarily the result of routine, day to day exposure to asbestos, not large asbestos removal projects.

AHERA requires that schools implement a set of measures to prevent exposure, and thereby protect school populations from the deadly hazards of asbestos. Unfortunately, too many schools across the country have done a very poor job of implementing AHERA's requirements. AFSCME has provided this Committee with a study recently conducted by its Health and Safety staff which documents a dismal record of compliance with AHERA by Ohio schools. In all probability, Ohio is not unique is this respect.

Despite shortcomings in implementation, it would be wrong, dead wrong, to conclude that AHERA was a bad idea. By way of analogy, the nation's laws prohibiting driving while under the influence of alcohol do not deter all individuals from driving while intoxicated, nor is the enforcement of such laws adequate to catch all those who violate these statutes. However, no one suggests that we repeal laws that are intended to discourage people who drink and drive, or not punish those who do. In the case of AHERA, the task before all those concerned about safeguarding the health of school children and workers is how to improve the effectiveness of AHERA.

Based on the Union's experience, the single most important factor hindering the full implementation of AHERA is the schools' lack of funds to address asbestos problems. Congress must appropriate sufficient funds so that schools have the resources they need to initiate measures which are essential to protect school children and employees from asbestos. Full funding of the asbestos in schools program can do more to guarantee protection from asbestos than any other single factor.

Asbestos in Schools and Other Buildings Poses a Serious Health Risk

The adverse health effects of asbestos have been clearly and repeatedly established. In the preamble to its 1986 asbestos regulation, the Occupational Safety and Health Administration [OSHA] stated that "OSHA is aware of no instance in which exposure to a toxic substance has more clearly demonstrated detrimental health effects in humans than has asbestos exposure." Asbestos is a potent carcinogen that causes mesothelioma, lung, esophagal, stomach, colo-rectal, kidney, and laryngeal cancers. Asbestosis is the scarring of lung tissue caused by the accumulation of asbestos fibers in the lungs, causing death or severe disability. The scarring may be within the lungs, or on their surface (pleura), or both.

Thousands of workers will continue to die of asbestos-related diseases through the rest of this century from the exposure they received over their working lives. However, the death and disease will not be confined to workers who encountered their exposures in the manufacture and installation of asbestos products. A new epidemic is emerging among those who have been exposed to asbestos fibers which have been released from asbestos-containing materials already placed in buildings, and the population at risk includes workers and other building occupants.

The public health problem posed by asbestos in buildings was documented at a conference sponsored by the Collegium Ramazzini, an international academic body of one hundred and twenty-five of the world's foremost experts in environmental and occupational health sciences, held the first week in June of this year. The Conference was entitled, "The Third Wave of Asbestos Disease: Exposure to Asbestos in Place, Public Health Control"

A concerted effort to identify those who have been adversely affected by exposure to asbestos in buildings has only recently begun, and these findings were presented at the Collegium. Doctors Stephen Levin of Mount Sinai and Christine Oliver of the Harvard Medical School conducted examinations of custodians in New York and Boston, respectively. In New York, thirty-nine percent of custodians employed by the New York City Board of Education for at least thirty-five years had asbestos-related x-ray abnormalities. Among Boston Public School custodians without known exposure to asbestos outside their work as school custodians, pleural plaques were observed in twenty-one percent of the workers. AFSCME will be conducting additional screenings in the near future, and Unfortunately, there is no reason to believe that the findings of doctors Levin and Oliver will not be replicated.

Dr. Henry Anderson of the Wisconsin Division of Health presented reports of mesothelioma cases among public employees: eight municipal building maintenance, eleven school maintenance workers, thirteen teachers, and three other school employees. The information was gathered from death certificate data and cancer reporting systems. Dr. Anderson presented more detailed information on several of the cases. One of the school maintenance workers died after thirty-five years of employment, and the other was a life-long carpenter who began as a municipal worker fifty years before he developed his mesothelioma. A teacher who worked for a school district in which significantly damaged asbestos material was identified and removed in 1979 died at the age of sixty-six. The second school employee was a cafeteria cook who died at the age of sixty-four, and in her hospital records she reported flaking asbestos ceiling material had been in the kitchen and had to be removed sometime in the 70's.

The emerging body of evidence clearly indicates that asbestos is a potential hazard for occupants as well as building service workers. Given recent findings of disease among custodians and other maintenance workers, it would be illogical to assume that no other occupants have been, or will be affected. AHERA, was passed in large part to protect school children from exposure. Although there is controversy over the significance of the hazard that asbestos poses to building occupants, there is general agreement that the risk increases with exposure.

Exposures of building service workers are higher than for other occupants. However, many custodial and maintenance tasks occur in areas which are inhabited by other people, including students. If asbestos control measures are not in place, workers cause contamination to themselves and others. Due to the physical characteristics of asbestos, fibers which are released can be circulated throughout the building by the ventilation system, exposing building occupants to asbestos.

Claims That the Dangers of Asbestos Have Been Exaggerated Are False

Recently, parties interested in limiting their liability due to asbestos have intensified their public relations efforts aimed at dismissing the risks of asbestos. They employ spurious science to bolster their claims that fear about exposure in buildings is exaggerated, and the real problem is "fiberphobia", rather than the asbestos. It is a reprehensible effort to portray asbestos in buildings as virtually harmless, and better off left alone.

One particular party you will hear from in this discussion is the Safe Buildings Alliance [SBA]. There is nothing safe or benign about this organization. SBA is comprised of former manufacturers of asbestos products. Asbestos companies and SBA have resisted all attempts to regulate asbestos and otherwise protect the public from their deadly products. SBA was a member of the negotiating committee that wrote the asbestos in schools regulation. SBA subsequently challenged the AHERA Rule all the way to the U.S. Supreme Court and lost on all counts. Needless to say, the financial interests in the asbestos debate are already very high. As the stakes grow higher, the claims and tactics of organizations such as SBA become ever more outrageous.

Present and former manufacturers of asbestos products and their allies have engaged in an unconscionable public relations and misinformation campaign. By denying there is any problem from exposure to asbestos in buildings, they seek to defeat or delay health protective laws and regulations, and ultimately reduce their own financial and legal exposure problems. Their tactics are similar to the campaign which has been conducted by the Tobacco Institute. However, there is a difference between exposure to asbestos and smoking cigarettes. In spite of sophisticated marketing pressures and the fact that cigarettes are addictive, people are able to quit smoking, and thus smoking is to some extent a voluntary exposure. By contrast, exposure to asbestos in buildings is an involuntary exposure. Workers and occupants are involuntarily exposed when a building has not been inspected and people are not notified of ACM locations; or when building owners or employers have not trained and equipped workers to avoid exposure, or initiated response actions to remove or otherwise properly manage asbestos materials.

The debate over the risks of asbestos in buildings and what measures are needed to address those risks escalated with the proceedings of the "Harvard Symposium" and an article by Mossman et al. in Science in January of this year. The Harvard meeting was sponsored by the National Association of Realtors, the Institute of Real Estate Management Foundation, the Safe Buildings Alliance and other self interested parties. From the hallowed halls of Harvard, a series of carefully selected presenters essentially characterized the issue of asbestos in buildings as, "Don't worry, be happy", and spend your money on real problems.

In the case of the Science article, the authors assert that chrysotile asbestos, the most common form of asbestos, is less toxic than other asbestos forms. We have attached an article written by Dr. William Nicholson of the Mount Sinai School of Medicine which refutes the findings of Mossman et al. Data discussed at the Collegium Ramazzini provided additional evidence to what has been known for many years, that all types of asbestos are potent carcinogens and producers of other types of disease. There are no inhaler-friendly fibers. Further, EPA Assistant Administrator for Pesticides and Toxic Substances, Linda Fisher, testified before the House Committee on Education and Labor Subcommittee on Health and Safety in early April, and stated: "Asbestos is known to cause cancer and other disease if fibers are inhaled into the lung and remain there, based upon studies involving human exposure and particularly at high levels. While evidence is better for some types of asbestos, there is no clear proof that other types are not as potent."

Of greater concern are the outrageous, misleading, and dangerous conclusions contained in the article's discussion of public policy implications, to which we will respond. Mossman et al. assert that asbestos in buildings is not an important risk factor. They argue that the mere discovery of asbestos in buildings creates panic, and a great deal of haphazard asbestos removals have been conducted which expose the abatement workers. The article concludes that the aim of public policy should be to curtail the so-called asbestos panic in this country in order to protect young removal workers who may develop asbestos-related cancers in later decades.

No reputable scientific body, nor governmental agency such as OSHA or EPA has ever determined there is a safe threshold of exposure to asbestos, and all asbestos fibers produce adverse health effects. There is consensus among all those who are knowledgeable and reputable regarding asbestos issues that asbestos exposure should be prevented, and certain measures are necessary to accomplish this objective in buildings which contain asbestos. The investigations of doctors Levin, Oliver, Anderson and others clearly demonstrate that asbestos in buildings is a risk to human health, not just the health of asbestos removal workers. And in buildings where asbestos has not been identified and/or appropriate steps have not been taken to prevent exposure, the presence of asbestos poses a significant and unreasonable risk to workers and occupants.

AHERA Requires a Proactive Approach to Prevent Exposure to Asbestos

AHERA is different and better than other asbestos laws because it recognizes that it is not possible to base policy toward asbestos in buildings on air measurements of asbestos. Once asbestos is in the air, you have lost the battle to prevent exposure. AHERA is a proactive approach requiring protective measures where asbestos has been identified, rather than all concentrations of asbestos. This entails finding asbestos, and taking measures ranging from management to removal of asbestos, to ensure that uncontrolled disturbance does not occur.

By contrast, parties who claim the risks of asbestos in buildings are minimal, base their assertion in part on questionable assumptions about ambient asbestos levels under so-called normal conditions. The air monitoring studies of buildings which have been cited are no reason for comfort or complacency. Air samples taken at a time when nothing is occurring in the building do not provide any information about exposures that result after building materials or asbestos debris are disturbed and release fibers into the air. Air monitoring studies of repair and maintenance jobs have repeatedly demonstrated that peak exposures do occur, creating air concentrations of asbestos many times above existing OSHA action and permissible exposure levels. Dr. Keyes and others have recently released data which further documents this fact.

When asbestos is disturbed, it does not harmlessly dissipate or disappear. When unprotected workers go above a drop ceiling, pull off pipe insulation, or sweep asbestos dust, some of those fibers are not going to be measured because they are in the lungs of the workers and bystanders who happen to be in the vicinity of the work. Unlike other asbestos regulations, AHERA requires that asbestos be identified, and an assessment be conducted of the present and potential hazard posed by the material. This information is critical in order to choose appropriate response options. These alternatives range from managing material in place to removal, or a combination of these strategies. Asbestos removal which is properly conducted, represents the only permanent solution for preventing exposure to asbestos. Asbestos removal can be accomplished without causing exposure to removal workers, or contaminating areas outside the work site.

Unfortunately, there are unscrupulous and/or incompetent removal contractors engaged in asbestos removal and other abatement activities. Parties interested in limiting their liability for the costs of asbestos removal have pointed to the existence of unqualified companies as reason to conclude that asbestos removal causes unacceptable exposure to asbestos, and therefore removal should be avoided wherever possible. Avoiding or discouraging removal is not the answer. Instead, requirements for training and work practices for asbestos removal should be more stringent and vigorously enforced.

The alternative to asbestos removal is managing the material in place. As an option allowed by AHERA, schools have relied heavily on managing asbestos in place to prevent exposure. The decision to manage asbestos in place requires an ongoing program of actions which are necessary to prevent the release of asbestos fibers, potentially for decades. Proper management of asbestos is much easier said than done, and is not necessarily an inexpensive alternative. The cost of repair and encapsulation operations approaches that of removal in part because regulated areas must be established the same as for removal work, and these expenses reoccur with removal. The cost to properly conduct operations and maintenance activities in a building can also be substantial. The expenses include training for building service workers and providing respirators. The use of respirators requires a medical surveillance program, fit testing, and other elements of a required respiratory protection program. Equipment must be available for planned activities which disturb asbestos, to respond to unanticipated events that damage asbestos materials, and to conduct routine custodial tasks in areas that contain asbestos materials.

The bottom line is that all options to adequately respond to the presence of asbestos in schools and other buildings cost money. Schools need financial assistance regardless of whether asbestos must be removed or managed in place. To the extent possible, society should impose the costs of preventing exposure and compensating its victims on those who have created the hazard. In the meantime, that help must come from the federal government.

Schools Have Failed to Effectively Implement AHERA

AHERA was passed unanimously because Congress found that the Environmental Protection Agency's 1982 school inspection rule was woefully inadequate. AFSCME supported the passage of the Asbestos Hazard Emergency Response Act [AHERA] of 1986, and was also a member of the negotiating committee which developed the EPA asbestos in schools regulation. The AHERA model of addressing asbestos hazards is sound. AHERA requires that local education agencies [LEAS] inspect primary and secondary school buildings for asbestos, identify the need for responses to asbestos, describe appropriate response actions, establish procedures for ongoing surveillance of ACM, establish an operations and maintenance [O&M] program, and implement other measures necessary for proper asbestos management.

In October 1989, EPA announced that ninety-four percent of the nation's public school districts and private schools had inspected school buildings and submitted management plans by the dates required in AHERA. The quality of inspections and management plans has not yet been evaluated. It is apparent, however, that many schools have not implemented the plans. Local unions in Ohio and across the country have contacted AFSCME headquarters for assistance where local education authorities have not taken steps necessary to protect their health.

AFSCME initiated a study to determine whether schools had implemented important elements of their management plans, as AHERA required by July 9, 1989. To answer this question, the investigation focused on the extent to which schools had complied with notification, training, and work practice requirements specified in the EPA Asbestos-Containing Materials in Schools Final Rule. Approximately four-hundred and fifty custodians and maintenance employees who work in schools that contain asbestos provided information regarding asbestos management practices in Ohio school districts of varying sizes throughout the State. The findings in this report clearly show that schools have not implemented basic AHERA requirements necessary to prevent asbestos exposure for workers, students, or other occupants.

The first issue examined was whether custodians and maintenance staff had been informed of the locations of asbestos in the buildings they work. Schools must provide all custodians and maintenance workers with awareness training which informs them of the locations of asbestos in each school building in which they work. Schools are also required to post warning signs in routine maintenance areas such as boiler rooms.

Eighty-four percent of respondents reported that they have received the mandatory asbestos awareness training. However, it appears that the training did not accomplish one of its principle objectives: who received training answered they had been told where all asbestos is located. Only seventy-three percent of those As for additional notification requirements, only forty-one percent of the school districts have complied with all of the following: informing staff of the locations of ACM, providing awareness training, and posting warning signs.

The next area investigated in this study concerns respiratory protection for school personnel. According to responses of building service workers concerning their work assignments, schools have not provided appropriate respiratory protection to their employees. Only thirty-four percent of workers expected to respond to minor and major disturbances of asbestos have been issued respirators. Compounding the problem, schools not only failed to issue respirators where necessary, but most often did not follow the most basic elements of a required respiratory protection program. Only thirty-two percent of those who had received a respirator responded that they were the only one who used the respirator, had been given a physical exam before receiving the respirator, and had received a fit test.

The survey also examined the availability of another type of protective equipment, vacuums with High-Efficiency Particulate Air Filters [HEPA]. Ordinary vacuum cleaners do not filter out asbestos fibers; they merely recirculate the fibers back into the air. HEPA-vacuums should be used in cleaning operations involving asbestos, and during maintenance activities such as glove bag operations used to repair asbestos-containing thermal pipe insulation. Only twenty percent of respondents reported that a HEPA-vacuum was available in their school(s) for performing glove bag operations or cleaning.

The study examined the extent to which appropriate work practices were being followed in the schools. AHERA distinguishes between activities which disturb small amounts of asbestos versus larger disturbances of ACM. For example, a minor fiber release episode is the falling or dislodging of less than three linear or square feet of asbestos, while a major release involves more than three linear or square feet. The AHERA regulation also specifies work practices for small scale, short duration [SSSD] operations and maintenance and repair activities involving asbestos. Examples of SSSD activities include repair of pipe insulation which can be contained in one glove bag, replacement of an asbestos-containing gasket or valve, or minor repairs to asbestos-containing wallboard. In all these cases, repair and cleanup must be performed by workers who have had a minimum of two days of training, who use specified work practices, and are wearing respiratory protection. Only thirty percent of the custodians and maintenance workers expected to clean up small amounts of asbestos have been properly trained and have been issued respirators. Further analysis showed that custodians received less training and equipment to properly conduct small clean up and repairs than did maintenance workers.

From the responses of our members, AFSCME learned that schools have complied less frequently with AHERA requirements for major release episodes than for smaller incidents. Responses to major fiber release episodes must be conducted by accredited workers who have received a minimum of three days training. only thirteen percent of custodians and maintenance workers who are expected to clean up more than three feet of asbestos have been properly trained and have been issued a respirator. Once again, custodians have received less training and equipment than maintenance staff.

Appendix B of the AHERA regulation describes certain activities which are prohibited where asbestos-containing materials are involved. Examples of these activities include: dusting or sweeping surfaces contaminated with asbestos, sanding floor tiles, removing or shaking dry ventilation filters, using ordinary vacuum cleaners to clean up asbestos debris, and removing ceiling tiles below areas which contain asbestos without wearing a respirator and clearing the area of other occupants. Unfortunately, the results of our study showed that many of our members are expected to perform these activities.

Schools were required to use special cleaning methods such as wet-cleaning or HEPA-vacuuming in all areas of a school building containing friable asbestos or suspected asbestos after the completion of the inspection and before the beginning of response actions other than activities considered to be operations and maintenance. The purpose of these procedures is to clean up asbestos fibers which have been previously released. Only twenty-six percent of respondents reported that the special cleanings had been performed.

This study did not attempt to evaluate whether necessary abatement actions had been taken, or the quality of such activities. However, respondents were asked whether they had been engaged in abatement jobs (removal, encapsulation, enclosure, or repair) involving large amounts of asbestos. AHERA requires that accredited personnel (a minimum of 3 days of training) conduct these activities. Only twenty-one percent of custodians and maintenance workers engaged in asbestos abatement have received proper training and have been issued a respirator.

The last issue examined in this study concerns exposure monitoring requirements for activities involving disturbance of asbestos. Exposures must be measured from representative breathing zone air samples. Monitoring must also be performed unless an employer already has data on employee exposures collected during similar operations. Schools have virtually ignored the exposure monitoring requirements: Only four respondents in the entire survey reported ever having worn an air sampling pump.

The survey responses of school custodians and maintenance workers clearly indicate that LEAs are not adequately preventing asbestos exposure to workers and students. Based on all criteria used, either a majority or substantial portion of schools have not complied with AHERA by satisfactorily implementing their management plans.

AHERA did not require LEAs to remove all asbestos in schools. As a result, there has been a heavy reliance upon managing asbestos in place as the response action chosen to prevent asbestos exposure. While this is legal, certain procedures must be followed to prevent uncontrolled disturbances of asbestos. Based upon the indicators used in this study, however, schools are doing a poor job of managing asbestos in place. The failure of LEAs to properly manage asbestos has therefore subjected workers and students to unreasonable levels of asbestos exposure, and continues to do so.

More Money and Better Enforcement Can Make AHERA Effective

The poor record of compliance can probably be explained in large part by the following factors:

First, asbestos management is often a relatively expensive activity for schools. Removal and other abatement costs can be prohibitive. Therefore, most schools have had to establish priorities for areas requiring abatement actions versus those areas where managing asbestos in place through an operations and maintenance program is permitted. However, properly managing material in place is also costly, and these expenses often compete with other needs of school district budgets. In all cases where compliance has been a significant problem, local school authorities have cited a shortage of funds as the main reason that they have not or cannot implement particular AHERA requirements.

Unfortunately, Congress did not authorize sufficient funds to help schools address asbestos problems as required in AHERA. Schools have had varying degrees of success in channeling existing funds to asbestos management or finding new sources of revenue. This has not been easy in a climate when schools have come under increasing public pressure to improve their performance in providing quality education.

Second, local school authorities often lack an understanding of AHERA and fail to appreciate the risks of asbestos. AHERA allows LEAs to use their own employees to perform asbestos management functions. However, these individuals have not always received sufficient training to carry out these responsibilities. For some school officials, AHERA implementation has been added to their other full time duties. They have neither the time or knowledge to ensure compliance on behalf of their school districts.

School officials have also failed to appreciate the health risks of asbestos exposure. The lack of knowledge contributes to a casual attitude about ensuring that the health protective measures of AHERA are followed. For most schools, AHERA represents a sharp departure from traditional work practices involving asbestos. Complacency is reinforced by the long latency period of asbestos-related diseases. Management's inappropriate attitudes toward asbestos have a direct bearing on the attitudes and behavior of all school employees. Unless building service workers receive effective training, have proper equipment, and detect a sense of urgency concerning asbestos management, it is unlikely that custodians and maintenance employees will have a sufficient appreciation of asbestos dangers and the need to carefully follow procedures which are necessary to protect themselves and others.

Third, EPA is responsible for enforcement of AHERA unless EPA has granted a waiver to a state to take over enforcement functions. AHERA granted EPA many enforcement tools. Under AHERA, EPA may inspect schools and impose substantial fines and other penalties. The Agency may assess criminal penalties for willful violations, and also obtain injunctive relief to respond to hazards which pose an imminent danger to human health. Unfortunately, the enforcement resources of EPA are limited, and EPA has not demonstrated its will to vigorously enforce AHERA. EPA has yet to make examples of schools for failure to comply. Schools are highly unlikely to be inspected by EPA. It does not appear that the threat of EPA enforcement action has had a substantial deterrent effect on LEAs who violate AHERA.

Conclusion

The Report on Ohio schools has implications for public and commercial buildings. The presence of unidentified asbestos and uncontrolled disturbance of the material poses an unreasonable health risk to anyone exposed. AHERA is a necessary law that was passed to protect school populations from deadly asbestos exposure. There are areas in which AHERA could be improved, such as training and work practice requirements. However, the logic and procedures of AHERA are sound for preventing asbestos exposure. The same approach of identifying ACM and determining appropriate responses to the presence of ACM is necessary in public and commercial buildings. According to EPA estimates, hundreds of thousands of public and commercial buildings contain asbestos. Based on a survey conducted by the New York City Department of Environmental Protection, there is reason to believe that the number of buildings which contain asbestos, and damaged asbestos, may be even greater than EPA estimates.

AFSCME is not satisfied with the situation in which the school employees we represent have better regulatory protections from asbestos than our members who work in nonschool settings. Asbestos is no less of a hazard to human health in other buildings. Therefore, we find it unacceptable that AHERA is the only federal regulation which requires that asbestos in buildings be identified and assessed for the current and potential hazard posed by the material. To remedy this situation, AFSCME is currently involved in a lawsuit against the Environmental Protection Agency to force the Agency to initiate a rulemaking that would require asbestos inspections of all public and commercial buildings, and require appropriate responses where asbestos is found. If asbestos management in schools is this poor despite relatively stringent regulation, the situation is certain to be more dangerous in buildings where there are no equivalent laws.

To conclude, although there have been problems with implementation, SCHOOLS HAVE CLEARLY, AND SUBSTANTIALLY IMPROVED THEIR EFFORTS TO ADDRESS ASBESTOS SINCE THE PASSAGE OF AHERA. However, schools need far more financial resources if they are to fully comply with AHERA, and thereby adequately protect school populations from asbestos. AHERA is not only essential for protecting school populations from asbestos, it is the type of model which is needed for other buildings.

ATTACHMENT 1

ON THE CARCINOGENIC RISK OF ASBESTOS EXPOSURES IN BUILDINGS

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The January 19, 1990 issue of Science magazine contained an article by B. T. Mossman, J. Bignon, M. Corn, A. Seaton and J. B. L. Gee[1] that argues that exposure to chrysotile asbestos in U. S. schools and other buildings is not a health risk nor is it in the workplace, if current OSHA standards are met. This argument is in direct contradiction with the current basis of OSHA and EPA regulation. The Mossman et al. argument is based largely on the contention that chrysotile asbestos, the type most commonly found in building materials, presents little, if any, carcinogenic risk, although they ignore its potential for causing scarred lungs (asbestosis). They are seriously wrong on both counts.

Asbestos usage in building products in the United States

Asbestos is a term given to six minerals which are fibrous, resistant to dissolution by acid and alkaline solutions and stable at high temperatures. The minerals are grouped into two classes, serpentine and amphibole, on the basis of their mineral structures. Chrysotile is the only serpentine asbestos mineral. The other commercial asbestos minerals, amosite, crocidolite and anthophyllite are in the amphibole class. So, too, are the fibrous forms of tremolite and actinolite. These last two minerals, however, were not mined commercially, but may be a contaminant of commercial asbestos or other building product materials, such as vermiculite. Amosite and crocidolite accounted for only 5% of the asbestos usage the U. S. over the years, but the usage of amosite was largely in friable building products, such as thermal insulation. Thus, the percentage usage of amphibole in such materials was greater than 5%.

Thermal insulation Both chrysotile and amosite are commonly found in thermal insulation, in pipe covering and in block, although some products contain only chrysotile. One type of thermal insulation material used aboard ship contains only amosite. Most asbestos cements contain only chrysotile.

Spray surfacing materials for fireproofing or sound control Fluffy, "cotton candy" surfacing materials can contain chrysotile or amosite, occasionally even crocidolite. The cementitious surfacing materials usually contain chrysotile, although up to 10% of the asbestos content of one product could be tremolite, from contamination of the vermiculite forming part of the mix. Textured paints usually also contain only chrysotile.

Other products Predominantly chrysotile asbestos was used for reinforcing in floor tiles, heat resistant papers, siding and shingles, and spackles. Current exposures from the presence of these materials in buildings are much less than those from the above two classes of materials.

The amphibole hypothesis

Mossman et al. subscribe to the "amphibole hypothesis," which they use to suggest that little, if any, cancer risk arises from exposure to chrysotile. They argue that the amphibole fibers of asbestos have substantially greater carcinogenic potential than chrysotile. This conjecture is based largely on the finding that workers exposed occupationally to asbestos, including even chrysotile miners, have more amphibole asbestos fibers in their lungs than chrysotile fibers. This occurs because chrysotile splits apart longitudinally in tissue and can partially dissolve in body fluids. In contrast, amphibole fibers are less attacked by body fluids and can be detected in the lungs of workers years after exposure. The source of amphiboles in chrysotile miners' and millers' lungs is an approximately 1% contamination of the chrysotile ore by tremolite. In workers exposed to both amphibole and chrysotile asbestos fibers, there are likely to be substantial quantities of amphibole fibers present and, after years, relatively little chrysotile. The Mossman et al. article use this finding to claim that because workers have more amphiboles in their lungs at the time they died it must have been those fibers that caused the observed disease, ignoring the fact the cancer process spans several decades. It also is a fallacious epidemiological argument as can be seen by considering the results of mortality studies of asbestos exposed workers analyzed in terms of exposure.

There are several studies[2-13] that provide information on both the amount of excess disease that a group of workers has and the amount of asbestos exposure that produced it. These are shown in Table 1. In addition to the listed studies, two studies of friction product manufacturing provide similar exposure response data.[15, 16] They were not included because the exposures were very low, each had epidemiological uncertainties and any estimates of risk made from them would be extremely uncertain. In one study[15] workers were banned from smoking at work since the early 1930s; thus, their lung cancer mortality is likely to have been affected. In the other study[16] an unusually high risk of lung cancer was observed overall, but no relationship with exposure was observed.

Lung cancer There are many studies that have shown that workers who have been exposed to chrysotile die of lung cancer more than expected. These investigations include those supported and sponsored by the Quebec Asbestos Mining Association. They are unequivocal in this regard.

The importance of this is that in most groups of workers exposed to asbestos, lung cancer--a neoplasm different and distinct from mesothelioma--kills three times as many workers as does mesothelioma. Thus, it is not appropriate to discuss the cancer causing properties of chrysotile without acknowledging the extensive data establishing that the fiber causes cancer and asbestosis in the men who mine and mill it and among those who later use the fiber in chrysotile textile production.

It is, therefore, of value to analyze the asbestos-related lung cancer experience and to do so specifically in terms of exposure. In reviewing Table 1 it can be seen that the risk of lung cancer per fiber exposure is very similar for all exposure circumstances except that of chrysotile mining and milling. The increased risk in the three predominantly chrysotile studies ranged from 1.0-2.8% per f-yr/cm^3. Among the remaining nonmining studies the percentage increase in lung cancer for a one year exposure to 1 f/cm^3 ranged from 0.5% to 4.3%, irrespective of the type of fibers used in the production process. These risks are identical to those of predominantly chrysotile exposures, within the statistical uncertainties of the data. Even a pure crocidolite exposure in mining demonstrated a similar risk, 2.1-5.8% increase per f-yr/cm^3.[3] Were the "amphibole hypothesis" to hold, the textile risks would have been up to 100-fold less. Mossman et al. suggest the high chrysotile textile risk might be due to "solvent and oils used in textile production." There is absolutely no evidence for this.

Although studies of chrysotile mining and milling demonstrate an excess risk of lung cancer, the risk is lower than seen in studies of other asbestos workers and, particularly, studies of production workers exposed only to chrysotile or 98% chrysotile. The origin of this lower risk is not fully understood, but part of the difference may lie in the different fiber size distributions between the mining and milling of chrysotile and its use in a textile plant or other production facility. Animal experiments in the U. S.[17] and Germany[18] indicate that the fibers most likely to produce cancer are too thin to be observed by a light microscope.

In the mine and mill the chrysotile fiber bundles have only been partially broken apart. Many of the fibers are large and easily counted; some are curly and nonrespirable. When shipped to a chrysotile textile mill the fibers are broken apart during carding and in the high-speed spinning and weaving processes thin fibers may split off from the threads; many of these are not visible in a light microscope. Thus, in the air of a textile plant the percentage of thin, uncounted but highly cancerous fibers can be much greater than in the mine and mill air--and a greater cancer risk is observed for the same measured fiber exposure.

Mesothelioma The risk of mesothelioma per fiber exposure in three studies where it can be estimated directly is identical for exposures to 98% chrysotile + 2 % crocidolite, 60% chrysotile + 40% amosite and 100% amosite (Column 5 of Table 1). Additionally, in the other studies where the mesothelioma risk cannot be estimated directly, the ratio of the number of mesotheliomas to excess lung cancers is the same, within the uncertainties of the estimations (Col. 6). Were mesotheliomas produced only by amphiboles, one would have expected large differences in the two measures of mesothelioma risk between studies 1-3 and 4-7 or 8. The same picture is portrayed by the more than 30 studies for which little or no exposure information is available. Again the ratios of mesothelioma to excess lung cancer were the same for exposures to 97%+ chrysotile, 100% amosite and mixtures of chrysotile, amosite and crocidolite, within statistical uncertainty. Only 100% crocidolite exposures appeared to have a greater ratio, about twice that of predominantly chrysotile.[14]

Experimental animal data The above human data are corroborated by similar data obtained by J. C. Wagner[19] in experimental inhalation studies with rats. Table 2 shows the results he obtained on the number of cancers produced by exposure to equal weight concentrations of different varieties of asbestos. In terms of fiber concentrations, the crocidolite concentrations would have been about 2.25 times less and the amosite concentrations 3.5 times less than those of chrysotile. Thus, the number of cancers produced per fiber exposure is virtually identical for all three asbestos varieties (as in most human exposure circumstances). In this research Wagner also measured the amount of asbestos retained in the lung after conclusion of the two-year experiment. He found that the weight of amphibole fibers in the lungs was about 15 times the weight of chrysotile, even though the air the various animals breathed contained equal weights of both asbestos types. Thus, the chrysotile fibers, although conveying an equal (or greater) risk of malignancy than the amphibole fibers, were clearly less persistent in lung tissue than the amphiboles. Further, solvents and oils could not have played a role in these experimental results.

The tremolite contamination of chrysotile

One feature of the chrysotile most commonly used in the United States, that from mines in Canada, is that the ore is naturally contaminated with about 1% tremolite, an amphibole fiber. Mossman et al. note that the risk of developing mesothelioma in the Canadian chrysotile miners is directly related to their lung content of tremolite, implying that it is the tremolite that caused the mesotheliomas. That conclusion is erroneous. Since the tremolite is proportional to the amount of chrysotile inhaled, it is a measure of chrysotile dose. Thus, there is as strong a correlation with chrysotile dose as with tremolite lung burden.

There are at least 67 mesotheliomas in Canadian chrysotile miners according to a statement of C. McDonald at a 1988 asbestos conference in Ottawa[20]. Additionally, a recent study[21] of 92 autopsies of Quebec chrysotile miners and millers showed that six were due to pleural mesothelioma, about the same proportion as seen, for example, in asbestos insulation workers. To attribute all these mesotheliomas to the small contaminant of tremolite is wrong because of the false logic discussed above and because of the dimensions of the tremolite fibers are of a less carcinogenic size than commercial amphibole asbestos varieties. Fibers longer than 10 μm and thinner than 0.5 μm are shown to be the most carcinogenic.[17,18] While the tremolite fibers are certainly carcinogenic, they are likely to be less so than commercial amosite or crocidolite (and also chrysotile), because they tend to be thicker and shorter. Finally, the point of which fibers produce cancer in miners and millers is rather moot, as the tremolite fibers are not removed during milling and are part of the chrysotile mixture used in various asbestos products.

Measurements of asbestos in the air of public buildings

Mossman et al. present data on air concentrations measured in buildings and in the outside air[22] and use the data to make estimates of risk for building exposures. These exposure data suffer two fundamental weaknesses. First, as evident by the fact that no asbestos fibers were observed in 83% of the samples analyzed, inadequate analytical techniques were used. (Even in the air of the Grand Canyon, occasional fibers are seen, when proper techniques are used.) In order to obtain a meaningful estimate of an asbestos concentration, at least four fibers should be counted in each sample analyzed. It would appear that at least ten times more filter area should have been scanned in these samples. Further, as acknowledged by the air study authors, their results indicated building levels ten times lower than the three other studies of asbestos air concentrations in buildings,[23-25] suggesting the possibility of analytical error.

Second, short-term air sampling is not likely to reflect actual long-term contamination levels in building circumstances.

Contamination of the air in buildings occurs largely from episodic releases during maintenance work or from physical abuse to the material. The very act of sampling alters the likelihood of such activities. Building maintenance or optional repair work will not be scheduled by a building manager when sampling is in progress. Sawyer[26] showed that the magnitude of episodic releases could be substantial. Table 3 presents data from his study of short-term exposures which were encountered during various maintenance activities in a library building containing asbestos surfacing material. As can be seen short-term concentrations as high as 18 f/cm^3 can occur from routine maintenance.

Further, clinical evidence of asbestos disease has been demonstrated among building service workers. C. Oliver et al.[27] have found that more than 40% of the X-rays of 52 school custodial and maintenance personnel had abnormalities, primarily pleural plaques, that are characteristic of asbestos exposure. Additionally, 27% of the workers had a forced vital capacity that was less than 80% predicted and 17% had a significant reduction in lung diffusing capacity. These are the two pulmonary function tests that are most affected by exposure to asbestos. Similar findings have been observed in studies of New York City Board of Education school custodians.

Risk estimates from building exposures

Mossman et al. dismiss any concern for exposures to 0.002 f/cm^3, 1/100 the allowed occupational level and approximately 10 times background asbestos levels. It has been calculated that the lifetime risk for a 13 year exposure at this level, beginning at age 5, ranges from 4-12 asbestos cancer deaths per 100,000 exposed, based on risk estimates by the three U. S. agencies[14,28,29] For a school population of 20,000,000 pupils, this translates into 800-2,400 cases of cancer. When evaluating widespread environmental risks, the focus is properly on the population risks, rather than the individual risks. Fortunately, because of action already taken, the average asbestos concentration in all school buildings is less than 0.002 f/cm^3. However, even if exposures in schools were as low as the 0.00024 suggested by Mossman et al., the lifetime mortality for an exposed school population of 20 million would still range from 100 to 300 asbestos cancers. Moreover, Mossman et al. focus on background amounts of asbestos, giving short shrift to high exposures, which are not sampled, that occur during damage or maintenance. They do acknowledge that ". .brief, intense exposures to asbestos might occur..": their solution is "worker education."

Finally, it is necessary to consider the risk assessment projections of Mossman et al. in an ethical context. Rather than compare asbestos risks with voluntary risks (smoking, school football) or risks that remain high despite expenditures of substantial public and private money (aircraft and highway accidents), it is worthwhile to compare them with other involuntary, environmental risks that are controlled by regulatory agencies (pesticide exposures, drinking water contamination). In a review[30] of regulatory actions taken by the FDA CPSC and EPA it was found that for estimated population risks exceeding 1 death/year, the individual lifetime risks were usually regulated if they exceeded 1/1,000,000 for a lifetime exposure. Only eight of 31 carcinogenic exposure circumstances that exceeded this level were not regulated. They involved saccharin, aflatoxin, formaldehyde and polycyclic organic matter. Average asbestos school building risks are from 0.5-10 per 100,000 for only a 13 year exposure. In some schools with particular problems the risks could be much higher. Thus, the risks that the EPA is attempting to reduce in school buildings by their AHERA regulation[31] are in the mainstream of regulatory action by the U. S. government.

The EPA does not require that asbestos be removed in school buildings. It does require that buildings be inspected for asbestos and, if asbestos material is found, an operations and maintenance program be put in place. The program involves notification of building workers and the public, training of workers to prevent release of asbestos during their activities, and repair of damaged asbestos material or its replacement, if future damage cannot be prevented. When it must be undertaken, EPA requires that removal be conducted in a highly controlled manner and that clearance monitoring criteria be done. If the EPA's requirements and recommendations are followed, the risks to workers will be minimized and residual building contamination will be prevented.

Conclusions

1. Both human and animal data strongly demonstrate that chrysotile asbestos is as potent a carcinogen to the lung as any other variety of asbestos.
2. The data also demonstrate a substantial risk of mesothelioma from exposure to chrysotile. There appears to be no difference in the potency of chrysotile and amosite for producing mesothelioma. However, exposures to pure crocidolite, which is rarely used in the U. S., may carry a two-fold greater risk.
3. Uncontrolled activities in buildings have led to substantial asbestos exposures and disease among building employees.
4. While individual cancer risks to building users are much lower than those of asbestos exposed workers, they are similar to other environmental risks that have been regulated by government agencies. Further, because of the widespread use of asbestos in buildings, and the millions of individuals with potential exposure, community risks can become substantial, in the absence of proper measures to prevent unnecessary exposures.

Table 1

The Risks of Lung Cancer and Mesothelioma Demonstrated in Studies of Workers Exposed to Various Asbestos Minerals

Study number	Asbestos exposure and location	Type of asbestos	Percentage increase in lung cancer for a one year exposure to 1 f/cm^3 of asbestos[a]	Relative risk of mesothelioma[b]	Ratio of number of mesotheliomas to excess number of lung cancers
1.	Textile manufacturing (South Carolina)[2,3]	100% chrysotile[c]	2.8		0.06[d]
2.	Textile manufacturing (Rochdale, England)[4]	98% chrysotile 2% crocidolite	1.0	1.0	0.35
3.	Textile manufacturing (Pennsylvania)[5]	98% chrysotile 1% crocidolite 1% amosite	1.4		0.78
4.	Amosite insulation manufacturing (New Jersey)[6]	100% amosite	4.3	3.2	0.19
5.	Insulation application (United States)[7,8]	60% chrysotile[e] 40% amosite[e]	0.8	1.3	0.66
6.	Asbestos products (United States)[9]	80% chrysotile[e] 15% amosite[e] 5% crocidolite[e]	0.5		0.19
7.	Asbestos cement products manufacturing (Louisiana, USA[10] and Ontario, CAN)[11]	89% chrysotile[e] 10% crocidolite[e] 1% amosite[e]	1.0		0.30
8.	Crocidolite mining[12]	100% crocidolite	2.1-5.8		0.57-0.93
9.	Chrysotile mining[13]	100% chrysotile	0.09		0.14

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[a] Details of the calculation of these unit exposure risks is described in the EPA's Airborne Asbestos Health Assessment Update.

[b] The calculation of risk was based on a mathematical model of mesothelioma incidence according to time from onset of exposure. Adequate data for this calculation were only available for the studies indicated.

[c] Chrysotile as mined in Canada is contaminated by a small amount of tremolite (generally less than 1 %). This contaminant is carried over in to the fiber as used in different industries. The percentages in the column refer to the percentage of commercially sold fiber, including the contamination. The possible effect of this contamination is discussed below.

[d] This value has a large statistical uncertainty (CL = 0.006-0.34). Only one mesothelioma death was identified. Were two more present the ratio would be identical to studies 4 and 6.

[e] The percentages of the various fibers used in the plants studied were not given. The estimates are based on published product compositions.

Table 2

Number of Rats with Lung Cancer or Mesothelioma after Exposure
To Various Forms of Asbestos through Inhalation

Form of asbestos	Number of animals	Adenocarcinoma	Squamous-cell carcinoma	Mesothelioma
Amosite	146	3	6	1
Anthophyllite	145	8	8	2
Crocidolite	141	7	9	4
Chrysotile (Canadian)	137	11	6	4
Chrysotile (Rhodesian)	144	19	11	0
None (Control group)	126	0	0	0

Exposure concentrations ranged from 10.1 to 14.7 mg/m^3

Table 3

Airborne Asbestos Levels Measured in
A Library with Asbestos-Containing Ceiling Material

Sampling conditions or situation	Mean counts (f/cm^3)	Number of samples	Standard deviation
Fallout			
Quiet conditions	0.02	15	0.02
Contact			
Cleaning, moving books in stack area	15.5	3	6.7
Relamping light fixtures	1.4	2	0.1
Removing ceiling section	17.7	3	8.2
Installing track light	7.7	6	2.9
Installing hanging lights	1.1	3	0.8
Installing partition	3.1	4	1.1
Reentrainment			
Custodians sweeping dry	1.6	5	0.7
Dusting, dry	4.0	6	1.3
proximal to cleaning	0.3	-	0.3

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This paper was prepared in response to the recent spate of publicity questioning whether the risks to the public of asbestos in buildings has been exaggerated.

ATTACHMENT 2

AFSCME SUMMARY AND RECOMMENDATIONS

The study, "Report Card on Asbestos: Ohio Schools Get Failing Marks", investigated whether primary and secondary schools in Ohio have complied with a number of critical provisions required by the Asbestos Hazard Emergency Response Act [AHERA]. Unfortunately, schools across Ohio have done a very poor job of implementing AHERA's requirements.

Although there have been problems with compliance, it would be wrong, dead wrong, to conclude that AHERA was a bad idea. AHERA is an important law which is necessary to protect all school occupants from deadly asbestos. Custodians, maintenance staff, and other building service workers are at great risk because their activities frequently result in peak exposures where asbestos has not been identified and appropriate precautions have not been taken. AHERA was enacted because asbestos in buildings is an unreasonable risk unless the locations of asbestos are identified and appropriate actions are taken where asbestos is found.

The findings in this report clearly show that Ohio Local Education Authorities [LEAs] have not implemented basic AHERA requirements necessary to prevent workers, students, or other occupants from being exposed to asbestos. While AHERA did not mandate that schools remove all asbestos-containing materials [ACM] from the schools, the law does require that schools follow certain procedures to properly manage asbestos in place. This study has discovered that schools have failed to implement a number of measures essential to properly control asbestos. In the absence of such measures, it must be assumed that workers and students have and continue to be exempt to asbestos.

A number of factors were used as indicators to evaluate the schools' performance. The investigation focused on the extent to which schools had properly notified workers of the locations of asbestos, issued respirators and other equipment, provided training, and were following required work practices. School custodians and maintenance workers provided information regarding asbestos management practices in their schools. Poor compliance with AHERA was reported in the following areas: Only 68 percent of custodians and maintenance staff have been informed of the locations of asbestos; only 53 percent of employees reported that required warning signs have been posted in their schools; only 30 percent of employees engaged in activities involving small amounts of asbestos have had proper training and have been issued a respirator; only 13 percent of employees who are engaged in activities involving more than small amounts of asbestos have had proper training and have been issued a respirator; only 32 percent of workers who have been issued respirators have their own respirators and have received fit testing and required medical exams; and only 20 percent of schools have HEPA-vacuums available for clean up and repair of asbestos.

Additional asbestos management procedures were not adequately followed. This included a failure to perform required special cleanings to decontaminate areas of previously released asbestos fibers. Building service workers were also expected to engage in "prohibited activities" where asbestos is involved.

The following recommendations are based upon the findings of this study and other efforts to ensure proper implementation of AHERA nationwide:

1. The Federal Government should increase funding to the schools for asbestos-related activities. Federal appropriations have not been sufficient to address asbestos issues in schools. Asbestos removal, other abatement actions, or properly managing material in place can be a financial burden on schools. In all cases where compliance has been a significant problem, local school authorities have cited a shortage of funds as the primary reason that they have not or cannot implement particular AHERA requirements.

2. All levels of school staff engaged in decisions and actions incoming asbestos should receive additional and improved training. Poor compliance with AHERA has also resulted because school officials have failed to appreciate the risks of asbestos exposure. Their lack of knowledge contributes to casual attitudes about asbestos and a continuation of traditionally dangerous work practices. Building service workers have not received the training they need to protect themselves and others from asbestos exposure.

3. The Environmental Protection Agency [EPA] should be given additional funds, or direct more of its existing resources for enforcement of asbestos regulations. The lack of effective enforcement has also contributed to the problem. EPA has the responsibility to enforce AHERA and other asbestos regulations, but does not have the resources, nor apparently the will to aggressively meet its enforcement obligations.

4. A regulation should be issued which requires public and commercial building owners to inspect their buildings for asbestos and implement appropriate response actions where asbestos is found. AHERA is the type of model which is needed for other buildings. The AHERA approach of identifying ACM and determining appropriate responses to the presence of ACM is necessary in public and commercial buildings. According to EPA estimates, hundreds of thousands of public and commercial buildings contain asbestos. Asbestos is no less of a hazard to workers and occupants in nonschool buildings. All asbestos fibers damage human tissue, regardless of the type of building. If asbestos management in schools is this poor despite relatively stringent regulation, the situation is almost certain to be more dangerous in public and commercial buildings where there are no equivalent laws.

AFSCME also calls upon the State of Ohio to increase its efforts to ensure compliance with AHERA by taking the following actions: (1) The State of Ohio should provide grants and loans for school districts to supplement local and federal resources; (2) the State of Ohio should provide training and technical assistance for school personnel to help them meet AHERA requirements; (3) the State of Ohio should coordinate enforcement activities with Federal EPA; and (5) the State of Ohio should provide asbestos medical examinations for school personnel who have been exposed to asbestos. It is important to identity those who have been adversely affected by asbestos so they may receive medical and legal assistance.

REPORT CARD ON ASBESTOS:

OHIO SCHOOLS GET FAILING MARKS

By

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Research Department
American Federation of State,
County and Municipal Employees

April 1990

INTRODUCTION

This study was conducted to determine whether local education authorities (LEAs) are protecting school populations from exposure to asbestos as required by the Asbestos Hazard Emergency Response Act (AHERA) of 1986. To answer this question, the investigation focused on the extent to which schools had complied with notification, training, and work practice requirements specified in the Environmental Protection Agency's (EPA) Asbestos-Containing Materials in Schools Final Rule. The findings in this report clearly show that LEAs have not implemented basic AHERA requirements necessary to prevent asbestos exposure for workers, students, or other occupants. Possible explanations for the lack of compliance, as well as policy implications are discussed in the conclusion.

BACKGROUND

The health effects of asbestos have been clearly established. In its preamble to its 1986 asbestos regulation, the Occupational Safety and Health Administration stated that "OSHA is aware of no instance in which exposure to a toxic substance has more clearly demonstrated detrimental health effects on humans than has asbestos exposure." EPA and OSHA have both stated that no safe threshold has been established for asbestos. The passage of AHERA and the 1982 school inspection regulations effectively recognized that asbestos-containing materials (ACM) in buildings pose an unreasonable risk which is addressed by inspection and appropriate response actions.

EPA has repeatedly recognized that custodians, maintenance staff, and other building service workers are at great risk because their activities frequently result in peak exposure episodes. In 1988, the *EPA STUDY OF ASBESTOS-CONTAINING MATERIALS IN PUBLIC BUILDINGS, A REPORT TO CONGRESS,* stated:

> *Service workers may encounter higher episodic exposures, particularly if their activities disturb ACM. They appear equally at risk, whether employed in public or commercial buildings or in schools.*

AHERA was enacted because Congress found that EPA's 1982 school inspection rule was woefully inadequate. AHERA required LEAs to inspect primary and secondary school buildings for asbestos; identify the need for responses to asbestos, describe appropriate response actions, establish procedures for ongoing surveillance of ACM, establish an operations and maintenance (O&M) program, and implement other measures necessary for proper asbestos management.

The asbestos in schools rule was developed through a process of negotiated rulemaking. Participants of the negotiating committee included a wide range of interest groups that included, among others, labor unions, National PTA, school boards and school administrators, state health departments, asbestos consultants and contractors, and former manufacturers of asbestos products.

The American Federation of State, County and Municipal Employees (AFSCME) was a member of the negotiating committee. AFSCME is a labor union of 1.3 million members representing a wide range of job classifications primarily in state and local government, hospitals, and non-profit organizations. AFSCME represents school employees across the country, and many thousands more custodial and maintenance workers in non-school buildings. Many union members and retirees have died or become seriously ill as the result of their exposure to asbestos in buildings.

In October 1989, EPA announced that ninety-four percent of the nation's public school districts and private schools had inspected school buildings and submitted management plans by dates required in AHERA. The quality of inspections and management plans has not yet been evaluated. Even where management plans have been submitted, it is apparent that many schools have not implemented the plans. Local unions across the country have contacted AFSCME headquarters for assistance where LEAs have not taken steps necessary to protect their health. Therefore, this study was initiated to evaluate the extent to which schools had implemented important elements of their management plans, as AHERA required by July 9, 1989.

METHODOLOGY

A two-page survey was distributed to school custodial and maintenance staff in Ohio through two of AFSCME's affiliate organizations: the Ohio Association of Public School Employees (OAPSE/AFSCME Local 4) and AFSCME District Council 8. Custodians and maintenance staff were asked whether they had been notified of the locations of asbestos in their buildings, if they had received training appropriate to their job duties, and whether proper work practices were being followed in the schools in which they worked. Four hundred and forty-six surveys were received from union members who worked in buildings with ACM (three hundred and thirty-two custodians, one hundred and seven maintenance workers, and seven without a job title). The employees who participated in the study are employed by school districts of varying sizes throughout Ohio.

FINDINGS

Notification of ACM Locations

LEAs are required by AHERA to notify workers of the locations of ACM through a number of mechanisms. All custodians and maintenance workers must receive an awareness training which informs them of the locations of ACM in each school building in which they work. A second method of communicating the locations of ACM is to post warning signs in routine maintenance areas such as boiler rooms. Warning signs must be prominently displayed and attached immediately adjacent to ACM and suspected ACM.

Compliance by LEAs with notification requirements varies. Eighty-four percent of respondents reported that they have received the mandatory asbestos awareness training. However, it appears that the training did not accomplish one of its principle objectives: Only seventy-three percent of those who received training answered they had been told all ACM locations.

Table 1 includes the rate of LEA compliance with additional notification requirements. Only forty-one percent of LEAs have complied with all of the following: informing staff of the locations of ACM, providing awareness training, and posting warning signs.

Table 1.
LEA Compliance With
Notification Requirements

Type of Notification	% of LEA Compliance
Have received awareness training	84
Have been told locations of ACM (includes those who have and have not received awareness training)	68
Warning signs have been posted	53
Have received awareness training, and have been told locations of ACM, and signs have been posted	41

Respirators

According to responses of building service workers concerning their work assignments, LEAs have not provided appropriate respiratory protection to their employees. One hundred and twelve respondents said they were engaged in activities that were considered minor fiber release episodes (the release of less than three linear or square feet of ACM), or major release episodes (more than three linear or square feet). None of these workers should be issued anything less than a half mask dual-cartridge HEPA-equipped respirator. Only thirty-four percent of workers expected to respond to minor and major disturbances of asbestos have been issued respirators.

The study group was also asked whether LEAs have complied with OSHA and EPA respiratory protection requirements. Those who had received a respirator were asked whether they were the only one who used the respirator, had been given a physical exam before receiving the respirator, and whether they had received a fit test. LEAs not only failed to issue respirators where necessary, but most often did not follow the most basic elements of a required respiratory protection program. These results are summarized in Table 2.

Table 2.
LEA Compliance With
Respiratory Protection Program
For Those Who Were Issued Respirators

	% of LEA Compliance
Only one who uses the respirator	83
Had physical exam before receiving respirator	42
Received respirator fit test	51
Answered yes to all questions about respiratory protection	32

HEPA-vacuums

Ordinary vacuum cleaners do not filter out asbestos fibers; they merely recirculate the fibers back into the air. Vacuums equipped with High-Efficiency Particulate Air filters (HEPA) should be used in cleaning operations involving ACM, and during maintenance activities such as glove bag operations used to repair asbestos-containing thermal pipe insulation. Only twenty percent of respondents reported that a HEPA-vacuum was available in their school(s) for performing glove bag operations or cleaning.

Operations and Maintenance (O&M)

Tasks Involving Small Amounts of Asbestos

AHERA distinguishes between activities which disturb small amounts of asbestos versus larger disturbances of ACM. For example, a minor fiber release episode is the falling or dislodging of less than three linear or square feet of asbestos, while a major release involves more than three linear or square feet. The AHERA regulation also specifies work practices for small scale, short duration (SSSD) operations and maintenance and repair activities involving asbestos. Examples of SSSD activities include repair of pipe insulation which can be contained in one glove bag, replacement of an asbestos-containing gasket or valve, or minor repairs to asbestos-containing wallboard. In all these cases, repair and clean up must be performed by those with a minimum of two days of training, who use specified work practices, and are wearing respiratory protection.

One hundred and two respondents answered they were expected to clean up less than three feet of asbestos debris. Table 3 demonstrates that LEAs have assigned employees to clean up small releases without appropriate training and respiratory protection. Only thirty percent of the custodians and maintenance workers expected to clean up small amounts of asbestos have been properly trained and have been issued respirator. Further analysis shows that custodians get less training and equipment to properly conduct small clean up and repairs than do maintenance workers.

Table 3.
LEA Compliance With
Ensuring Personnel Are Properly Trained and Equipped
For Duties Involving Small Amounts of ACM

Of Respondents Who Were Expected to Clean Less Than Three Feet of ACM	% of LEA Compliance
Had at least 2 days of training	44
Have been issued a respirator	36
Had at least 2 days of training and have been issued a respirator	30*

* 18% of custodians had proper training and a respirator, compared to 56% of maintenance workers with proper training and a respirator.

Activities Which Disturb More Than Small Amounts of ACM

Responses to major fiber release episodes must be conducted by accredited workers who have received a minimum of three days training. Table 4 demonstrates that LEAs have complied less frequently with AHERA requirements for major release episodes than for smaller incidents. Only thirteen percent of custodians and maintenance workers who are expected to clean up more than three feet of asbestos have been properly trained and have been issued a respirator. Once again, custodians have received less training and equipment than maintenance staff.

Table 4.
LEA Compliance With
Ensuring Personnel Are Properly Trained and Equipped
For Duties Involving More Than Small Amounts of ACM

	Number Who Are Expected to Clean More Than Three Feet	Number Who Had Three Days of Training and a Respirator	% of LEA Compliance
Custodians	41	2	5
Maintenance workers	13	5	38
All	54	7	13

Prohibited Activities

Appendix B of the AHERA regulation describes certain activities which are prohibited where ACM is involved. Table 5 highlights five of the "prohibited activities" and the extent to which respondents reported that employees in their schools were expected to conduct these activities.

Table 5.
Extent of Prohibited Work Practices

Expected to Perform Prohibited Activity	% of LEA Non-Compliance
Dust or sweep ACM contaminated surfaces	47
Sand or high-speed buff floor tiles	46
Remove or shake dry ventilation filters	31
Use ordinary vacuums to clean up ACM debris	27
Remove ceiling tiles below ACM without respirator or clearing area of others	21

Initial Cleanings

Schools were required to use special cleaning methods such as wet-cleaning or HEPA-vacuuming in all areas of a school building containing friable ACM or suspected ACM after the completion of the inspection and before the beginning of response actions (other than O&M), unless such cleaning had been performed in the previous six months. The purpose of these procedures is to clean up asbestos fibers which have been previously released. Only twenty-six percent of respondents reported that the special cleanings had been performed.

Asbestos Abatement

This study did not attempt to evaluate whether necessary abatement actions had been taken, or the quality of such activities. However, respondents were asked whether they had been engaged in abatement jobs (removal, encapsulation, enclosure, or repair) involving large amounts of ACM. AHERA requires accredited personnel (a minimum of 3 days of training) to conduct these activities. Fourteen custodians and ten maintenance workers reported performing abatement jobs. Table 6 shows that only twenty-one percent of custodians and maintenance workers engaged in asbestos abatement have received proper training and have been issued a respirator.

Table 6.
LEA Compliance With
Requirements for Abatement Training and Respirators

Of Respondents Who Perform Abatement Work		Had Three Days of Training and a Respirator	% of LEA Compliance
Custodians	14	2	14
Maintenance	10	3	30
All	24	5	21

Exposure Monitoring

LEAs must comply with current OSHA and EPA exposure monitoring requirements for activities involving disturbance of ACM. Exposures must be measured from representative breathing zone air samples. Monitoring must also be performed unless an employer already has data on employee exposures collected during similar operations. LEAs have virtually ignored the exposure monitoring requirements: Only four respondents in the entire survey reported ever having worn an air sampling pump.

CONCLUSION

The survey responses of school custodians and maintenance workers clearly indicate that LEAs are not adequately preventing asbestos exposure to workers and students. This study used notification of the locations of ACM, availability of respirators and other equipment, training, and work practices required in AHERA as indicators of the effectiveness of schools' asbestos management programs. Based on all criteria used, either a majority or substantial portion of LEAs have not complied with AHERA by satisfactorily implementing their management plans.

AHERA did not require LEAs to remove all asbestos in schools. As a result, there has been a heavy reliance upon managing ACM in place as the response action chosen to prevent asbestos exposure. While this is legal, certain procedures must be followed to control disturbance of asbestos. Based upon the indicators used in this study, however, LEAs are doing a poor job of managing asbestos in place. The failure of LEAs to properly manage asbestos has therefore subjected workers and students to unreasonable levels of asbestos exposure, and continues to do so. This poor record of compliance is probably explained by the following:

1. Costs

Asbestos management is often a relatively expensive activity for LEAs. Removal and other abatement costs can be prohibitive. Therefore, most schools have had to establish priorities for areas requiring abatement actions versus those areas where managing ACM in place through an operations and maintenance program is permitted. However, properly managing material in place is also costly, and these expenses often compete with other needs of school district budgets. Training, respirators, equipment, storage, and disposal of ACM are examples of items which can strain budgets. In all cases where compliance has been a significant problem, local school authorities have cited a shortage of funds as the main reason that they have not or cannot implement particular AHERA requirements.

Unfortunately, Congress did not authorize sufficient funds to help schools address asbestos problems as required in AHERA. Schools have had varying degrees of success in channeling existing funds to asbestos management or finding new sources of revenue. This has not been easy in a climate when schools have come under increasing public pressure to improve their performance in providing quality education.

2. LEA Awareness and Attitudes Concerning AHERA and Asbestos

Local school authorities often lack an understanding of AHERA and fail to appreciate the risks of asbestos. AHERA allows LEAs to use their own employees to perform asbestos management responsibilities. However, these individuals have not always received sufficient training to carry out these functions. For some school officials, AHERA implementation has been added to their other full time duties. They have neither the time or knowledge to ensure compliance on behalf of the LEA.

School officials have also failed to appreciate the health risks of asbestos exposure. The lack of knowledge contributes to a casual attitude about ensuring that the health protective measures of AHERA are followed. For most LEAs, AHERA represents a sharp departure from traditional work practices involving ACM. Complacency is reinforced by the long latency period of asbestos-related diseases. Inappropriate attitudes of management toward asbestos have a direct bearing on the attitudes and behavior of all school employees. Unless building service workers receive effective training, have appropriate equipment, and detect a sense of urgency concerning asbestos management, it is unlikely that custodians and maintenance employees will have a sufficient appreciation of asbestos dangers and the need to carefully follow procedures which are necessary to protect themselves and others.

3. Enforcement

EPA is responsible for enforcement of AHERA unless EPA has granted a waiver to a state to take over enforcement functions. AHERA granted EPA many enforcement tools. The law allows EPA to inspect schools and impose substantial fines and other penalties. The Agency may assess criminal penalties for willful violations, and also obtain injunctive relief to respond to hazards which pose an imminent danger to human health.

Unfortunately, the enforcement resources of EPA are limited, and EPA has not demonstrated its will to vigorously enforce AHERA. EPA has yet to make examples of schools for failure to comply. LEAs are highly unlikely to be inspected by EPA. It does not appear that the threat of EPA enforcement action has had a substantial deterrent effect on LEAs who violate AHERA.

Implications for Public and Commercial Buildings

The presence of unidentified ACM and uncontrolled disturbance of ACM poses an unreasonable health risk to anyone exposed. AHERA is a necessary law that was passed to protect school populations from deadly asbestos exposure. Although AHERA could be improved in areas such as training and work practice requirements, the logic and procedures of AHERA are sound for preventing asbestos exposure. The same approach of identifying ACM and determining appropriate responses to the presence of ACM is necessary in public and commercial buildings. According to EPA estimates, hundreds of thousands of public and commercial buildings contain asbestos. Asbestos is no less of a hazard to workers and occupants of non-school buildings. All asbestos fibers damage human tissue, regardless of the type of building.

Mr. LUKEN. Thank you very much, Mr. August. We're hearing a lot about a lot of things.

Ms. West, legislative chair of the Virginia PTA, representing the National Parent-Teacher Association. Welcome to you.

STATEMENT OF SARAH WEST

Ms. WEST. My name is Sarah West. I'm the legislative chair of the Virginia PTA, a State affiliate of the National PTA. I have been an active PTA member for 30 years and currently serve as a member of the Washington Area Legislative Service Volunteers, a local organization of PTA leaders from the Washington, DC, Maryland, and Virginia areas.

On behalf of our 6.8 million members, I appreciate this opportunity to testify before your subcommittee on the problem of asbestos in schools and specifically on H.R. 3677, legislation to reauthorize AHSAA. My oral presentation is a condensed version of the National PTA's written statement that will be a part of the record.

Supporters of H.R. 3677 recognize the critical need for the ASHAA program and can appreciate the many problems schools across the country currently face in addressing the asbestos situation. I can relate as an example an asbestos crisis in my own State that continues today. In York County, VA, two elementary schools were closed this current academic year when significant asbestos contamination was discovered. Over 1,200 children were displaced and thousands of dollars worth of textbooks and supplies had to be destroyed. To simply recount the events of the York County situation does not convey the unseen emotional toll the parents, teachers and students at these schools have experienced, not to mention the financial pressures abatement work will place on the county's school budget.

I wish this were a lone example of the asbestos problem in schools, but it is not. In Tennessee, where I am from, I served as the State PTA president and I saw school boards wrestling with the amount of money that was going to have to be spent on asbestos removal, and so I'm very well aware of the different aspects of hurt that this situation can create in a school system.

I am not an asbestos expert or a scientist. I am a parent, a grandparent, and an advocate for all children. I do know that there are many schools with significant asbestos hazards and that insufficient Federal funding is available to help them. I also know we must support Federal legislation now in place, specifically ASHAA and AHERA, if we hope to eliminate this unnecessary risk.

Throughout its long involvement in this issue, the National PTA has remained strongly convinced that there is no known level at which exposure to asbestos is considered safe. Fifteen million children and 1.5 million school employees are exposed to friable asbestos-containing materials at more than 44,000 schools nationwide. Children, because of their longer remaining lifespan and higher rates of breathing, are more susceptible to the dangers posed by exposure to asbestos than are adults.

Knowing this, the National PTA cannot sit back and wait while the experts prolong the debate about whether asbestos is hazardous or not. We must now ensure that children are no longer exposed to this environmental hazard in our schools. The need for the ASHAA program and the increased demand for funding has been demonstrated.

For 1990, LEA's requested $403 million for abatement activities, and $43.4 million was awarded, enough to fund only about 11 percent of the total requested. Since 1984, only about 16 percent of the schools applying for ASHAA funds have received awards. Even among those projects that have been categorized as priority one, the most hazardous, less than one-third have been funded.

Given these figures, we are extremely disappointed that the House Appropriations Subcommittee on VA-HUD-Independent Agencies, in just completing markup of its fiscal year 1991 funding budget, appropriated $48 million for the next year. We had hoped that this figure would have been higher, especially since the House Budget Committee report had recommended that ASHAA be given priority for increased funding this year. Increased Federal funding for ASHAA is critical to assure that school districts are not forced to postpone the purchase of needed educational supplies or materials in order to fund asbestos projects.

In addition to increased funding, the National PTA is pleased that the EPA has agreed to examine the financial need criteria used to determine the school district's eligibility for ASHAA awards. We also want to review amendments to the bill that would impose worker training standards and requirements on asbestos contractors conducting abatement and inspection work on non-school buildings. We agree that all asbestos workers should be afforded the same health and safety protections regardless of their worksite. However, we want to ensure that changes, if they are accepted, do not in any way adversely affect the current situation in schools.

Finally, we would like to discuss possibilities for using the loan money that is returned to the ASHAA trust fund. EPA just announced its projection that the trust fund will have over $430 million by the year 2010. Currently, this money must be reappropriated before EPA can spend it. We would like to see EPA given the authority to award this money to qualified applicants when the demand for ASHAA assistance exceeds what is granted through the regular congressional appropriation.

We are aware that some people are trying to minimize the risk of asbestos to the general population by saying the hazard is only to workers who are exposed in occupational settings to high levels of asbestos over a long period of time. However, you have heard the results of public school custodians in New York which found asbestos-related problems among workers whose only exposure to asbestos was during their tenure in the school. In banning all uses of asbestos last year, EPA reported that:

> It is well recognized that asbestos is a human carcinogen and is one of the most hazardous substances to which humans are exposed in occupational and nonoccupational settings.

Further, EPA stated:

> The conclusions regarding the health effects of asbestos exposure represent a widely accepted consensus of opinion of health agencies, scientific organizations, and independent experts.

Know that there is no known safe level of exposure for asbestos, why would any of us allow our children to remain in classrooms or school buildings that have friable asbestos-containing materials? The National PTA is not willing to stand by and wait as schoolchildren test to find out what level the exposure becomes hazardous. The National PTA remains convinced that asbestos in schools is a national crisis, warranting increased Federal involvement. We vigorously oppose the repeal of AHERA and strongly urge Congress not only to authorize ASHAA but to provide significantly increased funding for the loan and grant program.

In conclusion, just for the sake of this testimony, let us accept for a moment the contention that low-level exposure to asbestos does not pose a risk to children and employees in schools. This reasoning does not contradict support for either AHERA or ASHAA. In fact, accepting this argument strengthens the need for both measures.

It seems we would at least want to ensure that asbestos exposure remain at low levels. In order to do this, we would hire qualified personnel to test if we had high levels of a, reduce high levels if found, periodically inspect for changes in the condition of nondamaged asbestos-containing materials, and abate asbestos that had been damaged. In other words, we would follow provisions similar to those outlined in AHERA. Similarly, we would not oppose ASHAA because ASHAA simply provides funding to school districts for abatement of asbestos hazards that have already been determined to be dangerous.

Again, thank you for this opportunity to comment on H.R. 3677. I would be happy to respond to questions.

[The prepared statement of Ms. West follows:]

Prepared Statement of Sarah West, Virginia PTA State Legislative Chair, on Behalf of the National Parent-Teacher Association

Good afternoon. My name is Sarah West. I am the Legislative Chair of the Virginia PTA, a State affiliate of the National PTA. I have been an active PTA member for 30 years, and currently serve as a member of the National PTA's Washington Area Legislative Service Volunteers, a local organization of PTA leaders from the Washington, D.C., Maryland and Virginia areas.

On behalf of the 6.8 million parents, teachers, students and other child advocates who comprise the membership of the National PTA, I appreciate this opportunity to testify before your subcommittee on the problem of asbestos in schools. My oral presentation is a condensed version of the National PTA's written statement so I would ask that the complete testimony be included as part of the record of this hearing.

Since its founding in 1897, the National PTA has been concerned about a variety of health and safety issues affecting schoolchildren. Our membership has approved a strong policy in support of Federal legislative and regulatory efforts to address environmental health hazards in schools, including asbestos, to ensure that adequate protections are provided for children and employees, and that proper procedures to minimize or eliminate hazards are followed.

To this end, the National PTA strongly supports H.R. 3677, legislation to reauthorize the Asbestos School Hazard Abatement Act [ASHAA] program. We applaud Representatives Luken and Eckart for their foresight in introducing this legislation along with former Representative Jim Florio, and we appreciate the support of the more than eighty other members of the House who have cosponsored this important legislation.

You recognize the critical need for this reauthorization and can appreciate the problems schools across the country currently face. I can relate, as an example, an asbestos crisis in my own State that continues today. In York County, Virginia, two elementary schools were closed down this current academic year when significant asbestos contamination was discovered. Over 1,200 children were displaced and thousands of dollars worth of textbooks and supplies had to be destroyed. To simply recount the events of York County's situation does not convey the unseen emotional toll the parents, teachers, and students at these schools have experienced, not to mention the financial pressures abatement work will add to the county's school budget.

I wish this were a lone example of the asbestos problem in schools, but it is not. I am not an asbestos expert, nor a scientist. I am a parent and an advocate for children. I do know that there are many schools with significant asbestos hazards and that insufficient Federal funding is available to help them. I also know we must support Federal legislation now in place, specifically ASHAA and the Asbestos Hazard Emergency Response Act [AHERA] if we hope to eliminate this unnecessary risk.

With this statement, I would like to review some of the facts pertinent to the issue of asbestos in schools, present the case for continued and increased funding of the ASHAA program, and respond to charges raised recently in magazine articles and editorials questioning whether asbestos abatement is a worthwhile expenditure of Federal funds, or if it is even necessary at all.

For decades, scientists have been studying the health effects of exposure to asbestos. There is little question that exposure to asbestos in occupational settings, at high levels, or for prolonged periods of time, poses significant risks to human health. Yet the debate about the dangers of asbestos in schools seems not to have been resolved despite the numerous studies and reports that have detailed the hazards, particularly to children. In addition, many Federal agencies, including the Centers for Disease Control [CDC], the National Institute for Occupational Safety and Health [NIOSH], the National Institutes for Health [NIH], and the Environmental Protection Agency [EPA], have reported on the harmful health effects of asbestos.

The National PTA has been involved in the policy debate about asbestos in schools from its start, and remains strongly convinced that: There is no known level at which exposure to asbestos is considered safe; 15 million children and 1.5 million school employees are exposed to friable asbestos-containing materials at more than 44,000 schools nationwide; and children, because of their longer remaining lifespans and higher rates of breathing, are more susceptible to the dangers posed by exposure to asbestos than are adults.

Knowing this, the National PTA cannot sit back and wait while the experts prolong the debate about whether asbestos is hazardous or not. The time for study and reflection has passed. We must act now to ensure that children are no longer exposed to this environmental hazard in their schools.

Federal, as well as National PTA, involvement in the debate about asbestos in schools dates back over 10 years. In 1979, after years of debate and study, the Environmental Protection Agency [EPA] initiated its voluntary "Technical Assistance Program" to help schools identify and abate asbestos hazards. Unfortunately, this program only helped schools that had already decided to inspect their buildings. With little guidance and no incentives, it was inevitable that school districts would not conduct voluntary inspections on their own. In 1982, after numerous delays and modifications, EPA published a final Asbestos in Schools Identification and Notification rule, which required schools to inspect their buildings and test for friable asbestos. Evaluation surveys conducted 2 years after the regulation was issued found high levels of noncompliance, demonstrating the ineffectiveness of the rule. As time progressed, more schools began to inspect, but again, there was insufficient guidance from the Federal Government, and schools found it difficult to find accredited or qualified trained personnel who could inspect and complete the necessary abatement work. Throughout this time, the National PTA sought more stringent procedures as it became apparent that voluntary measures were not going to succeed.

In 1980, Congress first acknowledged the Federal responsibility to assist financially strapped school districts with the costs of cleanup by enacting P.L. 96-270, a loan and grant program designed to help schools detect and abate hazardous asbestos. The law was administered by the Department of Education, but never received funding. At congressional hearings on the subject held in 1984, a number of educational groups, including the National PTA, testified about the severe financial burdens schools faced in attempting to eliminate the asbestos hazard from schools, and about the lack of funding for the Department of Education program.

In June 1984, with broad bipartisan support, Congress approved the ASHAA legislation, which transferred the loan and grant program to the EPA. The ASHAA process requires that local education agencies [LEA's] submit applications for funds to their State's governor. The governors verify the financial need of the LEA's and then rank the applications according to the severity of the asbestos hazards described in the applications. EPA awards the funds based on a combination of the two factors—financial need and degree of hazard posed by the asbestos. Applications from financially eligible schools are given a priority rank based on the degree of damaged friable asbestos they have, with "Priority One" signifying the most damaged materials. The ASHAA program provides interest-free loans to LEA's for up to 100 percent of the cost of a school's hazard abatement and/or grants to LEA's for up to 50 percent of the abatement costs.

In creating the ASHAA program within the EPA, Congress acknowledged that an attempt to manage asbestos in America's schools was going to require Federal assistance. However, there have been annual struggles to secure funding for this program. In 1984 Congress appropriated the $50 million that was authorized for the first year. Since then the appropriations levels have been well under the authorization ceilings; the law authorized $700 million over a 7 year period, but so far schools have received only about $203 million. An additional $45 million has been spent during these years on related activities, such as worker training and certification, loan management, program administration and technical assistance to States. For the current fiscal year, 1990, the authorization ceiling is $125 million and $43.4 million was awarded to schools.

The Administration has never requested funding for this program. In the 1991 budget, the President again proposed elimination of the program stating "the worst threats and neediest schools are currently being addressed." The Administration further defended its position in reporting, "by 1991, all schools should be well along in implementing their asbestos management plans."

The National PTA believes firmly that continued and increased Federal financial assistance is needed for the ASHAA program. According to EPA, as of October 1989, 94 percent of all school districts had completed the asbestos management plans required by the Asbestos Hazard Emergency Response Act [AHERA] enacted in 1986. By July of 1989, all schools should have actually begun to implement these plans. This year, for the fifth consecutive year, the amount of money requested through ASHAA has increased. For 1990, LEA's requested $403 million for abatement activities, and the $43.4 million awarded was only enough to fund about 11 percent of the total requested. Since 1984, only about 16 percent of the schools applying for ASHAA funds have received awards. Even among those projects that have been categorized as Priority One—the most hazardous, less than one-third have been funded.

Given these figures, we are extremely disappointed that the House Appropriations Subcommittee on VA-HUD-Independent Agencies, in just completing markup of its fiscal year 1991 funding bill, appropriated only $48 million for next year. We had hoped, especially since the House Budget Committee report had recommended that ASHAA be given priority for increased funding this year, that this figure would have been higher.

H.R. 3677 extends the authorization for the loan and grant program through fiscal year 1995 and increases the maximum amount that could be appropriated to $250 million per year. The new legislation would improve the program by increasing the authorization ceilings, strengthening the administration of the application and award processes to avoid unnecessary delays, and requiring that applicants be implementing their management plans according to AHERA.

As in current law, H.R. 3677 would set aside certain funds for worker training and certification, an important aspect of the overall asbestos management program. While we are disappointed that insufficient funding has been available for actual loans and grants to schools, we do not want to see funds targeted for certification and training cut either.

The ASHAA totals—both for actual loans and grants and for related activities—are abysmally low. The EPA itself has estimated that the schools' cost of compliance with AHERA is over $3 billion. The National School Boards Association [NSBA], in a survey of its members on this issue, has estimated that cost to be closer to $6 billion. So far, the total amount provided to schools through ASHAA represents only 6 percent of even the lower EPA estimate.

There are a few aspects of H.R. 3677 that the National PTA would like to review before the bill is marked up. For example, we are interested in examining the financial need criteria used by EPA to determine a school district's eligibility for ASHAA awards. We also want to discuss amendments to the bill that would impose worker training standards and requirements on asbestos contractors conducting abatement and inspection work in nonschool buildings. We agree that all asbestos workers should be afforded the same health and safety protections regardless of the setting; however, we want to ensure that changes, if they are accepted, do not in any way adversely affect the current situation in schools. Finally, we would like to discuss possibilities for using the loan money that is returned to the ASHAA trust fund. EPA just announced its projection that the trust fund will have over $403 million by the year 2010. Currently this money must be reappropriated before EPA can spend it. We would like to see EPA given the authority to award this money to qualified applicants when the demand for ASHAA funding exceeds the regular congressional appropriation.

While the primary purpose of this testimony has been to highlight the serious need for renewal of the ASHAA program, I also want to take this opportunity to respond to charges made in magazine articles and newspaper editorials alleging that the public and the Federal Government have overreacted to the problem of asbestos in schools.

The article that seems to have had the greatest impact is one published in the January 19, 1990 issue of Science. The article leaves readers with two major misconceptions about the asbestos problem. The first concerns unnecessary asbestos removal. The Asbestos Hazard Emergency Response Act, known as AHERA, does not require removal of asbestos. The purpose of AHERA was to create a comprehensive, standardized plan for managing the asbestos problem in our nation's schools, not to require removal of asbestos. AHERA requires an initial inspection of schools to determine if asbestos is present, and regular surveillance to detect if damage or deterioration of asbestos has occurred. In properly managing asbestos, schools must develop management plans that provide for monitoring the asbestos to ensure that it remains in good condition. If damaged asbestos is found, schools must repair the damage, encapsulate or enclose the damaged materials, and in rare instances remove the asbestos, using special procedures. More importantly, AHERA requires that all of this work be performed by trained, experienced, EPA-accredited professionals.

AHERA was enacted in 1986 in response to a critical need to establish safeguards and guidelines for a process that was out of control. Prior to AHERA, many schools were already proceeding with asbestos abatement work. However, they were at the mercy of unqualified personnel who increased the health risks by performing inferior work, or by undertaking unnecessary removal projects. In 1985, the EPA estimated that 75 percent of asbestos abatement work was being done improperly. Today, over 94 percent of the nation's schools have completed asbestos inspections and developed management plans, bringing them closer to the goal of reducing children and school employees' risk of exposure to hazardous asbestos in schools.

The second oft-repeated misconception is that low-level exposure to the type of asbestos predominantly found in schools in this country—chrysotile asbestos—poses relatively low risk compared to other types of asbestos. This same issue was debated in 1984. Then-Chairman of the Senate Subcommittee on Toxic Substances, Environmental Oversight, and Research and Development, former Senator Robert Stafford (R-VT), and fellow-committee-member, former Senator James Abdnor (R-SD), asked the Director of the Center for Environmental Health at the Centers for Disease Control [CDC] for his views on the health effects of chrysotile asbestos.

In response to the Senators' request, the CDC prepared a statement on chrysotile asbestos and disease. The statement concluded that chrysotile asbestos is carcinogenic and that this position is supported by extensive scientific studies on both animals and humans. In congressional testimony presented in 1983, the Department of Health and Human Services' Public Health Service representative, Dr. Vernon N. Houk, stated that "the hazards of chrysotile asbestos have been established as medical fact and that there is no good basis for debate to the contrary."

Others who attempt to minimize the risk to the general population offer that asbestos is only harmful to workers who are exposed, in occupational settings, to high levels of asbestos over long periods of time. However, in a recent study of public school custodians in Boston, Dr. Christine Oliver of Harvard Medical School found an unusually high rate of lung scarring among these workers whose only exposure to asbestos was during their long tenures in the schools. At Mt. Sinai School of Medicine, a recent examination of school custodial workers yielded similar results.

Numerous reports on the hazards of asbestos have been issued over the past decade. But even very recently, in July 1989, the EPA issued a final rule to ban *all* uses of asbestos. After 3 years of analysis and study, and review of 45,000 pages of comments just on the proposed rule, EPA reported that, "It is well-recognized that asbestos is a human carcinogen and is one of the most hazardous substances to which humans are exposed in occupational and *nonoccupational settings*" (emphasis added). Further, the EPA states, "the conclusions [reached by the EPA] regarding the health effects of asbestos exposure represent a widely accepted consensus of opinion of health agencies, scientific organizations, and independent experts." The data presented to Congress by the EPA and leaders in the scientific community clearly demonstrate that there is no known safe level of exposure to asbestos.

Knowing this, why would any of us allow our children to remain in classrooms or school buildings that have friable asbestos-containing material while the experts conclusively decide at what level the exposure becomes hazardous? The National PTA is not willing to stand back and wait as schoolchildren "test" the level of risk of asbestos in their classrooms.

We must act responsibly. EPA estimates that over 44,000 school buildings may have friable asbestos problems. The Federal Government must renew its commitment to eliminate the hazard posed by asbestos in schools to the 15 million schoolchildren and 1.5 million school employees exposed to the harmful substance every day. We understand that asbestos abatement can be expensive. However, concerns about cost should not relieve us of our responsibility to provide safe and healthful classroom environments for schoolchildren. Increased Federal funding for ASHAA is critical to assure that school districts are not forced to postpone the purchase of needed educational supplies or materials in order to fund asbestos abatement projects.

After reading this statement it becomes evident that the National PTA is extremely concerned about this issue and remains convinced that asbestos in schools is a national crisis warranting increased Federal involvement. The National PTA vigorously opposes repeal of AHERA, and strongly urges Congress to reauthorize ASHAA and provide significant funding increases for the loan and grant program.

In concluding, just for the sake of this testimony, let us accept for a moment the contention that low-level exposure to asbestos does not pose a risk to children and employees in schools. This reasoning does not contradict support for either AHERA or ASHAA. In fact, accepting this argument strengthens the need for both measures. It seems we would at least want to ensure that asbestos exposure remains at low levels. In order to do this, we would hire qualified personnel to test if we had high levels of asbestos, reduce high levels if found, periodically inspect for changes in the condition of nondamaged asbestos-containing materials, and abate asbestos that had been damaged. In other words, we would follow provisions similar to those outlined in AHERA. Similarly, we would not oppose ASHAA because ASHAA simply provides funding to school districts for abatement of asbestos hazards that have already been determined to be very dangerous.

Again, thank you for this opportunity to comment on H.R. 3677. I would be happy to respond to questions you have concerning our position on this issue.

Mr. LUKEN. I would hate to have to try to argue with that statement.

Ms. WEST. Thank you.

Mr. LUKEN. Not only was it delivered well, but it was a very good statement. Thank you.

Ms. WEST. Thank you.

Mr. LUKEN. Mr. Veith.

STATEMENT OF C. GREGORY VEITH

Mr. VEITH. Mr. Chairman, my name is Greg Veith. I am the manager of facilities and construction for the Archdiocese of Chicago and I'm representing the Council for American Private Education today.

As the designated person for our school system, I am responsible for the asbestos program for the seventh largest school system in the United States with 393 schools.

The Council for American Private Education, CAPE, is a Washington-based coalition of 14 national organizations representing private elementary and secondary schools. We include Catholic, Lutheran, Montessori, Hebrew Day, independent, military, Solomon Schechter, Episcopal and private schools for exceptional children. In this country, there are 27,000 private schools in all, serving over 5 million students.

CAPE strongly urges passage of H.R. 3677 reauthorizing ASHAA, as this is the only source of Federal funds available to schools to assist us in implementing our AHERA programs. AHERA mandated response actions are very costly. However, since July 1989, when schools were required to begin the response actions, estimated costs have escalated and are expected to continue to do so. For example, we believe the original EPA cost estimate of $3 billion is far short of actual costs.

The present ASHAA authorization and appropriations have proven inadequate to address the enormity of the asbestos problems in schools. Congress has provided less than $50 million per annum over the past 7 years, and $250 million over a 7 year period is totally inadequate to address this problem.

The U.S. Catholic Conference, also a member of CAPE, conducted a survey this year on projected costs for abatement, along with actual costs of initial inspections and management plans. This data, which most accurately reflects State level costs, represents 60 percent of our dioceses. These costs total $430 million and would likely grow to $800 million for all of the dioceses.

CAPE also conducted a survey of its non-Catholic schools and found the following: The 93 Illinois Lutheran Church-Missouri Synod schools will spend about $3.7 million; the 20 Christian Schools International schools of Illinois and Indiana will spend over $1 million; the 25 Mid-Atlantic Seventh-Day Adventist schools will spend about $2.2 million; and private schools in New York State will spend well over $109 million.

The financial cost to the Nation's schools to meet the requirements of AHERA is staggering. While the public school community may meet some of the costs of these requirements by raising local or State tax levies, private and parochial schools must raise these funds as best they can by fundraising activities or by borrowing from local lending institutions at premium cost. Regardless of the source of these public and private school funds, they are resources which could be best used to enhance the education of our Nation's schoolchildren.

CAPE certainly supports ASHAA reauthorization to the full amount of $250 million per annum. We also support the recent amendment to S. 1893, which would require the EPA to distribute applications or notify schools no later than November 15 of each year concerning the ASHAA program. This, in turn, would allow EPA to approve these applications by the following January in order for the LEA's to properly plan for summer work. Also, provisions should be made for the LEA's to distribute and/or redistribute funds at the local level. For example, the triennial inspection will be due in 1992. H.R. 3677 allows for funding of these inspections, but the EPA processes make this unfeasible.

We also request relief in the procedures for excluding certain schools from the funding process. We believe a financial need clause should be included in this bill. It has been the practice of the EPA to automatically reject any application from a public school district with average per capita income in the top 30 percent of the country.

For private schools, the EPA uses per-pupil spending to eliminate the top 30 percent of the applicant pool. It is our opinion that these cutoffs sometimes result in needy schools being eliminated. Financial need cannot be fully evaluated without considering the impact of the cost of an abatement project on the schools, the number of people available to share the burden, the special costs of serving disadvantaged students, and other factors, such as the local cost of living, that could result in inflated per-pupil expenditures of per capita income.

In closing, I would like to quote from the House Concurrent Budget Resolution report for fiscal year 1991:

> The committee also recommends that EPA programs designed to reduce environmental hazards in our Nation's schools, such as those authorized by the Asbestos School Hazard Abatement Act and the Lead Contamination Control Act, be given priority for increased funding.

I thank you for allowing me to testify today, and I will try to answer any questions you may have.

[The prepared statement and attachment of Mr. Veith follow:]

Prepared Statement of C. Gregory Veith, Manager, Facilities Services and Construction, Archdiocese of Chicago, on Behalf of the Council for American Private Education

Mr. Chairman and distinguished members of this subcommittee, I am Gregory Veith, Manager of Facilities and Construction for the Catholic Archdiocese of Chicago. I wish very much to thank the subcommittee for allowing me to testify today. I am representing the Council for American Private Education. As the designated person for our school system, I am responsible for the asbestos program for the seventh largest school system in the country with 393 schools. This responsibility includes implementation of the AHERA laws, inspections, management plans, project design, worker training and insuring that the response actions shown in the management plan are properly carried out.

The Council for American Private Education [CAPE] is a Washington-based coalition of 14 national organizations representing private elementary and secondary schools. We include Catholic, Lutheran, Montessori, Hebrew Day, Independent, military, Solomon Schechter, Episcopal and private schools for exceptional children. In this country 12 percent of elementary and secondary students attend private schools, 13 percent of our teachers teach in private schools, and 25 percent of all schools are private. There are some 27,000 private schools in all, serving 5,241,000 students. (National Center for Education Statistics)

CAPE strongly urges passage of H.R. 3677 reauthorizing ASHAA, as this is the only source of Federal funds available to schools to assist us in implementing our AHERA programs. AHERA mandated response actions are very costly. Since July 1989 when schools were required to begin the response actions, estimated costs have escalated and are expected to continue to do so. For example, we believe the EPA cost estimate of $3 billion is far short of actual costs.

In 1982, the EPA issued the "Friable Asbestos-Containing Materials in Schools Identification and Notification Rule" (40 CFR Part 763) promulgated under the Toxic Substances Control Act. This rule required all schools to inspect, sample, and analyze friable asbestos materials; document and maintain records; and notify employees, students and parents of such hazards. In the absence of any Federal financial assistance and with minimal training, most school officials made every good faith effort to comply with these regulations.

However, both Congress and the EPA were dissatisfied when surveys revealed that about 30 percent of all schools had not complied with the Asbestos-in-Schools Rules. The Asbestos School Hazard Abatement Act was passed in 1984 because Congress determined that the presence in school buildings of friable or easily damaged asbestos created an unwarranted hazard to the health of schoolchildren and employees who are exposed to these materials. The act established an EPA program of interest-free loans and grants of up to 50 percent of the abatement cost to assist schools to comply with Asbestos-in-School Rules. Congress authorized $50 million for fiscal years 1984 and 1985 and $100 million per annum for the subsequent 5 years to assist schools to abate asbestos health hazards.

Two years later, in 1986, Congress reemphasized its concern about exposure to asbestos hazards in schools and enacted the Asbestos Hazard Emergency Response

Act. This statute required the nation's public and private schools to inspect buildings for all asbestos containing materials, develop and implement plans for the operation, maintenance and repair of such materials, and to take corrective response actions necessary to protect human health and the environment from asbestos hazards. All of these activities were required to be performed by State certified personnel. Schools were required to provide training to custodial staff regarding the proper handling and maintenance of asbestos materials. These requirements have placed a heavy financial burden on our nation's schools. Unfortunately, Congress did not authorize any funding to assist schools to comply with the requirements of AHERA. Apparently it was thought that the funding provided under ASHAA, in 1984, was sufficient to address the schools' asbestos problems. If Congress considers it a national priority to abate asbestos hazards in schools, then it should also consider it a national priority to provide the necessary resources to assist all schools in complying with the Asbestos Hazard Emergency Response Act.

The present ASHAA authorization and appropriations have proven inadequate to address the enormity of the asbestos problems in schools. Congress has provided less than $50 million per annum over the past 7 years and even this amount has been reduced each year by the Gramm, Rudman, Hollings budget reduction requirements. $250 million over a 7 year period is totally inadequate to address this problem.

The EPA, in implementing the compliance requirements of AHERA, has projected that approximately 106,983 elementary and secondary schools nationwide will be affected. EPA has also projected that the potential estimated cost to schools for addressing the specific requirements of AHERA to be the following:

	In millions of dollars
1. Inspections and sampling	78.5
2. Development/implementation of management plans	1.27
3. Periodic surveillance	47.7
4. Reinspection	23.2
5. Special operations and maintenance	292.7
6. Abatement response actions	1.43
Total cost (in billions [1] of dollars)	3.145

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[1] Federal Register/Vol. 52, No. 210/Friday, October 30, 1987, page 4185.

The US Catholic Conference, a member of CAPE, conducted a survey this year on projected costs for abatement, including the costs of initial inspection and management plans. With 105 out of 176 dioceses responding, the actual cost totaled $430 million. This represents only 60 percent of the dioceses. Therefore, this figure will likely grow to $800 million.

We based our projections on the actual cost of inspections and management plan development in 6626 Catholic elementary and secondary schools. Our survey (Attachment A) indicates the following projected costs for abatement activities in those same schools:

Inspections	$7,051,991
Management plan development	32,834,701
Projected cost of abatement activities	390,782,519
Grand total of real and expected costs	429,869,143

If these 6,626 Catholic schools from 105 dioceses in 44 States and the District of Columbia can be regarded as a microcosm of the 106,983 elementary and secondary schools nationwide, the total cost to our nation's schools to comply with the requirements of AHERA would be $6,938,087,968 or more than twice the amount projected by the EPA. This figure also closely corresponds to the estimate of $6 billion in a report released by the National School Boards Association in July 1989.

CAPE conducted a survey of its non-Catholic schools and found the following: the 93 Illinois Lutheran Church-Missouri Synod schools will spend about $3.7 million; the 20 Christian Schools International schools of Illinois and Indiana will spend over $1 million; the 25 Mid-Atlantic Seventh-day Adventist schools will spend about $2.2 million. Private schools in New York State alone will spend well over $109 million.

The financial cost to the nation's schools to meet the requirements of AHERA are staggering beyond belief and fall upon poor, rural, inner city and middle class suburban schools without exception. The public school community may meet some of the costs of these requirements by raising local or State tax levies or by floating local bond issues. Private and parochial schools must raise these funds as best they can by school "fundraising" activities or by borrowing from local lending institutions at premium. Regardless of the source of these public and private schools funds, they are resources which can best be used to enhance the education of our nation's schoolchildren.

Congress in enacting the Asbestos Hazard Emergency Response Act has imposed a tremendous financial burden on our nations' schools. It is incumbent, then, that this same legislative body provide adequate financial assistance to schools to enable them to meet their statutory obligations in this regard.

CAPE certainly supports ASHAA reauthorization. We support the recent amendment to S. 1893 which would require EPA to distribute applications or notify schools no later than November 15 of each year concerning the ASHAA program. This in turn would allow EPA to approve these applications by the following January in order for the LEA's to properly plan for summer work. Also, provisions should be made for the LEA's to distribute and/or redistribute funds at the local level. For example, the triennial inspection will be due in 1992. H.R. 3677 allows for funding these inspections, but the EPA processes make this unfeasible.

Additionally, we request relief in the procedures for excluding certain schools from the funding process. We believe a "financial need" clause should be included in this bill. It has been the practice of the EPA to automatically reject any application from a public school district with average per capita income in the top 30 percent of the country. For private schools, the EPA uses per-pupil spending to eliminate the top 30 percent of the applicant pool. It is our opinion that these cutoffs sometimes result in needy schools being eliminated from the applicant pool. Financial need cannot be fully evaluated without considering the impact of the cost of an abatement project on the schools, the number of people available to share the burden, the special costs of serving disadvantaged students, and other factors, such as the local cost of living, that may result in inflated per-pupil expenditures of per-capita income.

Although the administration did not include funds for asbestos abatement in its 1991 budget, EPA has been helpful in working with the schools on both ASHAA and AHERA. We thank the Environmental Assistance Division for convening a meeting on rethinking the financial needs analysis for private schools and for their continued communication on that and other topics.

Both public and private schools have had to cut back on their education programs in order to pay these extraordinary costs. At a time when schools are working so hard to equip children with the many skills needed for their success, we urge Congress to make a large commitment to help shoulder the costs of protecting their safety. It is now that schools need Congresses support for reauthorizing ASHAA at the highest possible figure but not less than $250 million annually over 5 years.

Thank you again for this opportunity.

ATTACHMENT A

DIOCESE-WIDE ASBESTOS COST ASSESSMENT

State and number of schools	Inspections	Planning	Abatement
Alabama: 24 Birmingham	28,000	12,000	1 million
Alaska: 2 Fairbanks	75,000	75,000	100,000
Arizona: 24 Tucson	16,000	11,000	305,000
Arkansas: 24 Little Rock	39,677.58	39,677.59	6,240,150
California:			
266 Los Angeles	250,000	250,000	6 million
48 Sacramento	42,117.13	42,117.13	539,627
50 San Diego	35,000	25,000	1,650,000
86 San Francisco	250,000	250,000	1 million
14 Stockton	22,100	36,350	98,331
Colorado: 37 Denver	87,000	88,000	2.8 million
Connecticut:			
55 Bridgeport			1.2 million
26 Norwich			4 million
Total: 669 schools	844,894	4,924,289	21,433,108
Delaware: 36 Wilmington			8 million
District of Columbia: 108 Washington	85,903	73,608	1 million

DIOCESE-WIDE ASBESTOS COST ASSESSMENT—Continued

State and number of schools	Inspections	Planning	Abatement
Florida:			
66 Miami			5.7 million
29 Orlando			1.5 million
19 Palm Beach	12,410	14,000	1.8 million
17 St. Augustine			500,000
33 St. Petersburg			438,000
Georgia:			
16 Atlanta			2.5 million
18 Savannah	4,905	15,312	550,000
Idaho: 13 Boise	12,542.47	12,542.47	412,712
Illinois:			
48 Belleville	156,268	78,134	4,176,707
393 Chicago	705,501	15,852,220	198,698,596
67 Joliet	125,000	125,000	10 million
Indiana:			
30 Evansville	38,000	38,000	3.5 million
46 Ft. Wayne-South Bend			2 million
Total: 939 schools	1,140,529	16,280,816	61,947,278
Iowa:			
57 Dubuque	52,000	52,000	3,746,000
42 Sioux City	23,080	4,200	2.5 million
Kentucky:			
41 Covington			1.2 million
26 Owensboro	13,682	13,682	400,000
Louisiana:			
15 Houma-Thibodaux	10,599	10,599	400,000
36 Lafayette	16,317	23,500	NA
100 New Orleans	116,200	116,200	3,506,800
Maine: 24 Portland	36,791.85	9,600	7,235,796
Maryland: 101 Baltimore	165,000	110,000	1.6 million
Massachusetts:			
192 Boston			25 million
28 Fall River			2.5 million
Michigan:			
194 Detroit			10 million
17 Gaylord			445,000
48 Grand Rapids	56,519	53,241	43,998
23 Kalamazoo			800,000
47 Lansing	60,231	60,232	3,335,000
34 Saginaw	91,900	52,000	1,674,000
Total: 1,025 schools	642,319	5,653,254	71,586,594
Minnesota:			
39 St. Cloud	44,512.98	45,479.09	90,836
122 St. Paul			10 million
30 Winona	29,109	48,609	1,640,193
Mississippi: 23 Jackson	17,678	17,688	NA
Missouri:			
208 St. Louis			65 million
26 Springfield-Cape Girardeau	4,730.04	4,730.04	1,972,112
Montana:			
26 Helena	7,500	6,325	200,000
15 Great Falls-Billings	32,500	32,500	12,000
Nebraska:			
29 Lincoln	16,255	16,255	431,563
81 Omaha			1.8 million
New Jersey:			
74 Camden			7 million
50 Metuchen	125,000	100,000	7.5 million
212 Newark	175,500	461,130	2.8 million

DIOCESE-WIDE ASBESTOS COST ASSESSMENT—Continued

State and number of schools	Inspections	Planning	Abatement
79 Paterson	188,000	140,350	2.5 million
Total: 994 schools	640,785	732,716	100,946,704
New York:			
8 Dioceses 3,292,060 inspections and planning			
57 Albany			1,281,540
166 Brooklyn			17,487,440
137 Buffalo			4,860,450
321 New York			13,836,480
28 Ogdensburg			886,550
77 Rochester			746,760
103 Rockville Centre			3,487,320
64 Syracuse			407,280
North Carolina: 15 Charlotte	66,000	53,412	1,594,303
North Dakota:			
20 Bismarck	15,700	15,700	637,300
17 Fargo	59,032	683,222	987,300
Ohio:			
138 Cincinnati	175,000	175,000	3 million
182 Cleveland	206,608	206,608	2 million
63 Columbus	43,200	56,800	4 million
60 Youngstown	32,000	33,000	5 million
Oklahoma:			
18 Oklahoma City	5,614.33	10,426.60	NA
15 Tulsa	36,320	1,800	300,000
Total: 1,481 schools	2,285,504	2,881,998	60,512,723
Oregon: 50 Portland			3.5 million
Pennsylvania:			
69 Allentown	71,500	71,500	350,000
54 Erie	60,161	60,161	14,941,819
62 Greensburg	94,739	18,000	5.5 million
62 Harrisburg	67,500	67,500	2.5 million
315 Philadelphia			1.3 million
153 Pittsburgh	3,176	1,750	969,150
70 Scranton	69,200	30,000	2.8 million
Rhode Island: 77 Providence	240,000	273,000	359,000
South Carolina: 30 Charleston	28,661	28,660	665,588
South Dakota: 32 Sioux Falls and Rapid City			1,238,912
Tennessee: 22 Memphis			2.6 million
Total: 996 schools	634,937	550,571	36,724,469
Texas:			
9 Amarillo	103,016	103,017	8,000
19 Austin			2.5 million
29 Corpus Christi	62,775	125,550	750,000
35 Dallas	50,000	50,000	6.9 million
17 Fort Worth			500,000
Utah: 12 Salt Lake City			100,000
Virginia:			
33 Arlington	400,000	400,000	5 million
35 Richmond			3 million
Washington:			
62 Seattle	50,000	100,000	13 million
18 Spokane	10,700	2,500	106,000
7 Yakima	14,080	8,400	65,200
West Virginia: 40 Wheeling-Charleston	6,390.45	116,118.48	496,847
Wisconsin:			
94 Green Bay	86,911	50,833	865,437
86 La Crosse	33,000	33,000	50,000
19 Superior	30,079	43,643	790,159

DIOCESE-WIDE ASBESTOS COST ASSESSMENT—Continued

State and number of schools	Inspections	Planning	Abatement
Wyoming: 7 Cheyenne	16,000	50,000	NA
Total: 522 schools	862,951	1,083,061	34,131,643
Grand total: 6,626 schools	7,051,919	32,034,705	390,782,519

Mr. LUKEN. Mr. Billirakis, EPA data indicates that the request for financial assistance has increased under ASHAA over the recent years. Do you have anything to base the anticipation that it will continue to increase? Is there anything happening out there? What do you notice?

Mr. BILLIRAKIS. I can tell you my personal experiences in the schools in the State of Ohio, Mr. Chairman, as to what is going on and what the need is. The data says that there is more and more asbestos revealed in every school building on an annual basis——

Mr. LUKEN. More and more each year?

Mr. BILLIRAKIS. That's correct.

Mr. LUKEN. More than anticipated?

Mr. BILLIRAKIS. More than anticipated. I can tell you that there's very little being done about it. I can tell you there's a tremendous amount of fear among school employees, especially the school employees we represent, teachers and some support personnel. I can tell you that parents are very much concerned, and there's a great deal of frustration among local board of education members and administrators who are standing by helpless and not being able to do much about it. I can tell you that the State of Ohio, at least, does not provide much funding for that.

Mr. LUKEN. Do any of them recommend any changes in the AHERA law, that you know of?

Mr. BILLIRAKIS. The State Department of Education did not recommend a change in the AHERA law. It simply made recommendations to the General Assembly last year for additional funding of $75 million to deal with the issue over a 2-year period. The General Assembly decided to fund it at only a $20 million level.

No, they did not recommend any changes, to my knowledge.

Mr. LUKEN. Does any of the panel have any recommendations for changes in the AHERA law? Mr. Veith.

Mr. VEITH. I think I would recommend that the AHERA law be more fully explained or clarified.

Mr. LUKEN. Can you give us a little more of a hint than that?

Mr. VEITH. I happen to agree with Linda Fisher's testimony, that over the past 1½ years there has been a lot of media hype and doom and gloom on national television and newspapers about asbestos removal, including you can't wash your floors if they have vinyl asbestos tile on it. I think clarification from AHERA from the start, but better late than never, on exactly what the law intended would be very helpful to us.

Mr. LUKEN. Okay. That makes sense.

Mr. August.

Mr. AUGUST. Yes, thank you.

One thing that I think would make a tremendous difference would be if the training requirements were upgraded. Currently, as a result of discussions about what to do with asbestos in public and commercial buildings, there are now a lot of motions, either with EPA or through legislative action, to upgrade the standards for what it takes to become an asbestos abatement worker, to raise the amount of hours.

We have to remember that the asbestos in schools rule was a negotiated rule and, unfortunately, some of the parties at the table decided, since there wasn't a specified number of hours of training in the law, that in the regulation they would cut it to the bare bones. In fact, everybody is paying for that right now.

Right now, everybody who is a maintenance and custodial person is supposed to get at least a 2-hour awareness training. What has happened is, at least 2 hours means a 2-hour awareness training. It's not enough to convey what people need to know, just to stay away from this stuff.

The next level of training is a 2-day training, and that's supposed to be for custodians and maintenance people who actually disturb material on a small basis, less than 3 feet of material. These are not certified workers. These are merely people who are supposed to respond to small occurrences.

I've had a lot of dealings with the training of these folks and I have talked to a lot of them about the training they've had, and a lot of it has been absolutely inadequate, which is why when something happens people don't respond correctly. Further, the people who are supposed to do the large abatement jobs and full-scale removal work are only required to have 3 days to become a certified abatement worker. That's clearly inadequate.

So, upgrading the training levels for all those different levels would go a long way for people actually—as has been said, for people knowing what they're supposed to be doing and then being able to carry those out because they have the equipment in order to do the job.

Mr. LUKEN. Does counsel have a question or two?

Mr. COLE. Several of you have mentioned using funds that are now in the asbestos trust fund. Would any of you choose to elaborate on that, how could we access those funds, what changes in the law would be required?

Mr. PACKER. If I may, when AHERA was passed in 1986—let me go back. Most of the funds that have been given out under ASHAA are loans. About two-thirds of the money is loans that schools repay back to the Federal Government. In 1986, AHERA said that any of those loans would be deposited in something called the asbestos trust fund, that that money would only be able to be spent on providing additional loans and grants for schools, but it could only be spent if so specifically appropriated by the Congress through the Appropriations Committee. So far the Appropriations Committee, in its wisdom, has decided not to appropriate any of those funds and they are building up—in fact, attached to the NEA testimony is a table, data we got from the EPA, that shows—as was mentioned, it's going to go up to $400 million over the next 20 years.

Mr. LUKEN. What is it now? Does anybody know?

Mr. Packer. About $25 million by the end of fiscal 1991. It's $23 million exactly.

Ms. Herber. It's more than that now.

Mr. Packer. Yes. It's going up

Ms. Herber. Eight million a day.

Mr. Packer. What we recommend specifically is that, in any year for which EPA itself says there is more qualified applications available than they have funds to fund them, that the EPA Administrator be given the authority to go into the trust fund and give those loans out to schools. In other words, rather than only making that money available if Congress appropriates and giving the EPA Administrator the authority to grant loans—at least loans if not grants, as well—to schools, if they meet EPA's own criteria and sufficient funding is not otherwise being provided by Congress.

Mr. Cole. One followup question.

You mentioned that currently the loan/grant ratio is about two-thirds loans?

Mr. Packer. Right. It's exactly, over the life of the program, 68 percent loans and 32 percent grants.

Mr. Cole. In order to make our dollars go a little farther, do any of you support going to an essentially loan only program, or toward increasing the amount of loans in proportion to grants?

Mr. Packer. It would not, at the time, make money go farther, because there's *x* amount of money that's available to give out. You could change the mix of it, but again, unless there was some mechanism to make sure that the money that was repaid was going to go back out, it wouldn't, in the long run, even make more money available.

I think also that for some truly financially needy districts, providing some grant money—and each of the awards is a different mix. Some can be up to 50 percent grants. I think, compared to other Federal statutes, it is actually a much higher loan award than a lot of other Federal statutes for schools. I don't know if Kate would——

Ms. Herber. I would have two comments. The first might be to consider getting rid of the trust fund and establishing an account over at Treasury, and then earmarking that money so that you have an earmarked appropriation over a period of time so that the money is always available then to EPA in order to make loans and grants.

The second thing that I would suggest is that there are some schools, as Joel Packer indicated, private and public, that would never be able to afford to repay the loan under any circumstances. We have some public school districts that are in a situation where they simply cannot pass a bond and there are no circumstances under which they would be able to increase taxes. So for them to receive a loan would be almost counterproductive because then they would be in a position of being required to pay the Federal Government back.

Mr. Cole. One final question, and that is, we've heard different numbers about how many of the projects have been accomplished in the last 5 years, 11 percent of all qualified, maybe one-third of the priority one projects that have been financed under the ASHAA program.

Do you have any feel for how many projects or the volume of dollars that has been spent locally by the State or local agencies—I mean, if we're doing *x* percent through the Federal route, what are the States doing?

Mr. BILLIRAKIS. For Ohio, in the previous biennium, they spent $1.8 million for all architectural design problems—that would include asbestos—and all other problems. The biennium that we're in right now, they approved $20 million for all structural projects.

Mr. COLE. But there is no countrywide data——

Mr. PACKER. No. It is my understanding that very few States—the State of New York has appropriated some funding, and I believe the State of Illinois. But other than those, and Ohio, and maybe one or two others I'm not aware of, very little State money is specifically earmarked for asbestos abatement. I mean, some schools obviously can use money from their general physical plant, construction type money, but very few States have statutes directly relating to funding of schools for asbestos abatement.

Mr. VEITH. I don't believe Illinois has providing any money for funding; only for the regulatory people.

Ms. HERBER. As a general rule, asbestos repair work or abatement or containment or removal will come under building renovation and construction. In general, States do not provide any financial assistance to local districts in order to do any renovation or reconstruction of buildings.

Mr. COLE. I didn't mean to limit it to States. I was interested in any numbers on State or locally raised funds.

Ms. HERBER. Well, I have a survey that we undertook of 671 schools that talks about—I mean, in general, that would be 100 percent local funding, either from tax exempt bonds or from general revenues. I can give you those figures.

Mr. COLE. Please.

Mr. LUKEN. All right. I thank this panel and I thank all of the witnesses. I believe we've had a successful hearing, demonstrating what needs to be done. There doesn't seem to be much dissension as far as ASHAA is concerned. We need to authorize it, so it's up to us to move ahead, which as chairman of the subcommittee I will say we will do, since the indications are there is support for it, which is the main ingredient. It is something that has to be done, needs to be done, so hopefully we will do it, inspired by this testimony.

Thank you very much. The hearing is adjourned.

[Whereupon, at 4:10 p.m., the hearing was adjourned.]

[The following statement was submitted for the record:]

STATEMENT OF THE SERVICE EMPLOYEES INTERNATIONAL UNION, AFL-CIO, CLC

The Service Employees International Union, AFL-CIO, CLC, appreciates this opportunity to comment on H.R. 3677, the Asbestos School Hazard Abatement Reauthorization Act. SEIU represents 935,000 service-sector employees, including more than 100,000 school employees who would benefit directly from passage of this important legislation.

Our building service and maintenance members are in daily contact with friable and nonfriable asbestos. They work in the boiler rooms and above suspended ceiling panels where asbestos is sprayed on the structural beams. They strip and wax floor tiles containing asbestos, and sweep and vacuum the floors under sprayed-on asbestos-containing ceilings. Many of the above activities disturb asbestos-containing materials, creating a hazardous environment for both service workers and other building occupants.

The findings of the original asbestos-in-schools legislation remain true today. Medical research has clearly demonstrated that "the presence in school buildings of friable or easily damaged asbestos creates an unwarranted hazard to the health of the schoolchildren and school employees who are exposed to such materials". (Findings of the Asbestos School Hazard Detection and Control Act of 1980). Recent studies have shown that a third or more of school custodians have lung damage indicative of asbestos exposure. For example, a Wisconsin study found that 43 percent of school janitors with 30 or more years on the job have lung abnormalities indicating damage from asbestos. A New York City study found that 28 percent of school custodians had lung scarring consistent with exposure to asbestos. A study of Boston school custodians had similar findings. A second Wisconsin study of mesothelioma cases (a rare cancer caused by exposure to asbestos), found a threefold increase in the risk of mesothelioma among school employees and janitors. The American Academy of Pediatrics has estimated that asbestos exposure in schools will result in the death of approximately 1,000 Americans over the next 30 years.

SEIU has long been concerned about the presence of asbestos in the nation's schools and other buildings. Beginning in 1983, SEIU launched a campaign to protect the health of our members who work in school buildings that contain asbestos. SEIU was instrumental in the passage of the Asbestos Hazard Emergency Response Act [AHERA], and we spearheaded efforts to obtain Federal assistance for asbestos cleanup work in the schools.[1] Accordingly, we commend the subcommittee for its efforts to extend and expand the Federal asbestos grant and loan program, otherwise known as ASHAA.

The financial assistance provided to school districts under the ASHAA grant and loan program is vital to the success of inspection, maintenance, and abatement efforts mandated under AHERA. Just as it is widely recognized that the hazard of asbestos in schools must be addressed, it is clear that many school districts are unable to afford these essential activities without jeopardizing their educational programs. ASHAA thus is a critical component of our nation's commitment to protecting our schoolchildren and school workers from the hazards of asbestos.

The proposed legislation would double the authorization level of ASHAA to $250 million per year. This is a much-needed change. One need look no further than the results of this year's awards by the Environmental Protection Agency to see that additional funds are sorely needed. In fiscal year 1990, EPA was able to assist 129 school systems undertaking 206 abatement projects in 168 schools. Yet the agency received applications from 863 school systems to fund a total of 3,352 abatement projects, 2,355 of which were identified by EPA as eligible for funding under the ASHAA program. EPA was therefore able to assist less than 10 percent of eligible abatement projects. Only 63 of 1,922 "Hazard Category Two" projects could be funded under the 1990 appropriation, or 3 percent of the eligible projects. The proposed reauthorization pending before the subcommittee will help address that problem.

ASHAA and AHERA, taken together, provide a responsible solution to the serious risks posed by asbestos in schools. There can be no doubt that ASHAA and AHERA are working. Tens of thousands of school districts have inspected their schools for asbestos and are working to design the appropriate response action. Because of AHERA, our members are being informed for the first time about the presence of asbestos in the buildings where they work.[2] Because of ASHAA, school districts are receiving the financial assistance they need to clean up asbestos in the schools.

It is all too clear that workers with exposure to hazardous asbestos in buildings are suffering adverse health effects from that exposure. Children are particularly vulnerable, and their exposure to unsafe building conditions poses a risk of similar tragic health effects. It is therefore imperative that the AHERA program proceed and that ASHAA be reauthorized in order to provide local school districts with financial assistance to carry out AHERA's important mission.

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[1] SEIU's concern about asbestos is not restricted to school buildings. Simultaneous with our efforts to address asbestos in schools, SEIU has worked to address asbestos in all public and commercial buildings. While AHERA and ASHAA are a critical first step in combating the hazards of asbestos in buildings, they are just a first step. SEIU will continue to press for legislation and/or regulations to abate asbestos hazards in all public and commercial buildings.

[2] This is not to say that compliance with AHERA has been complete. Many, if not most of our members who work in schools, have not received the two-hour "awareness" training mandated under AHERA. SEIU believes that AHERA is a model that works, but that stronger enforcement of the law is needed.

SEIU is well aware of the recent spurt of publicity surrounding the issue of asbestos in buildings. Much has been made about articles in Science magazine and the New England Journal of Medicine which claim that undisturbed asbestos in buildings is safe. Those same articles claim that chrysotile asbestos—the most widely used type of asbestos—is not hazardous at low levels of exposure. We urge the subcommittee not to be misled by these articles. They are part of a well-orchestrated publicity campaign being conducted by the asbestos industry in an attempt to downplay the risks posed by asbestos in buildings in order to limit their financial liability. The conclusions of the Science and New England Journal articles have been called into question by a number of scientists as well as by the EPA. Whatever the claims of the authors of the Science and New England Journal articles, medical studies are revealing adverse health effects among school workers whose only exposure to asbestos is from school buildings.

SEIU stands ready to assist the subcommittee in its efforts to protect the health of our nation's schoolchildren and school workers, and urges the subcommittee to pass H.R. 3677 without delay. Thank you for the opportunity to comment on this legislation.

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